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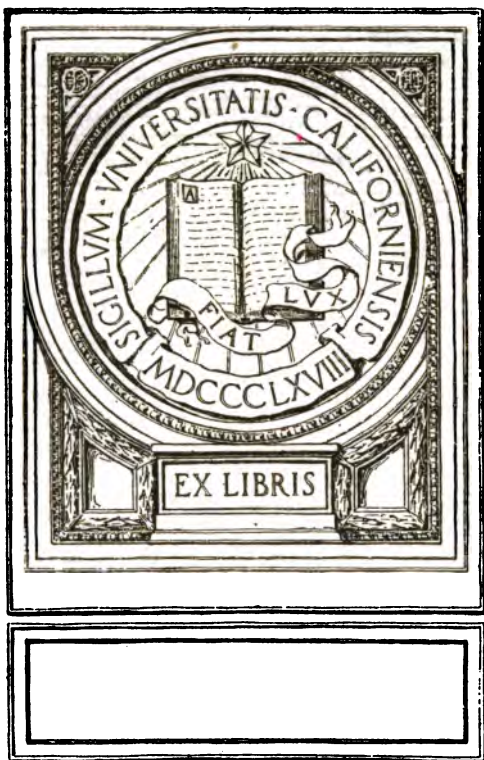
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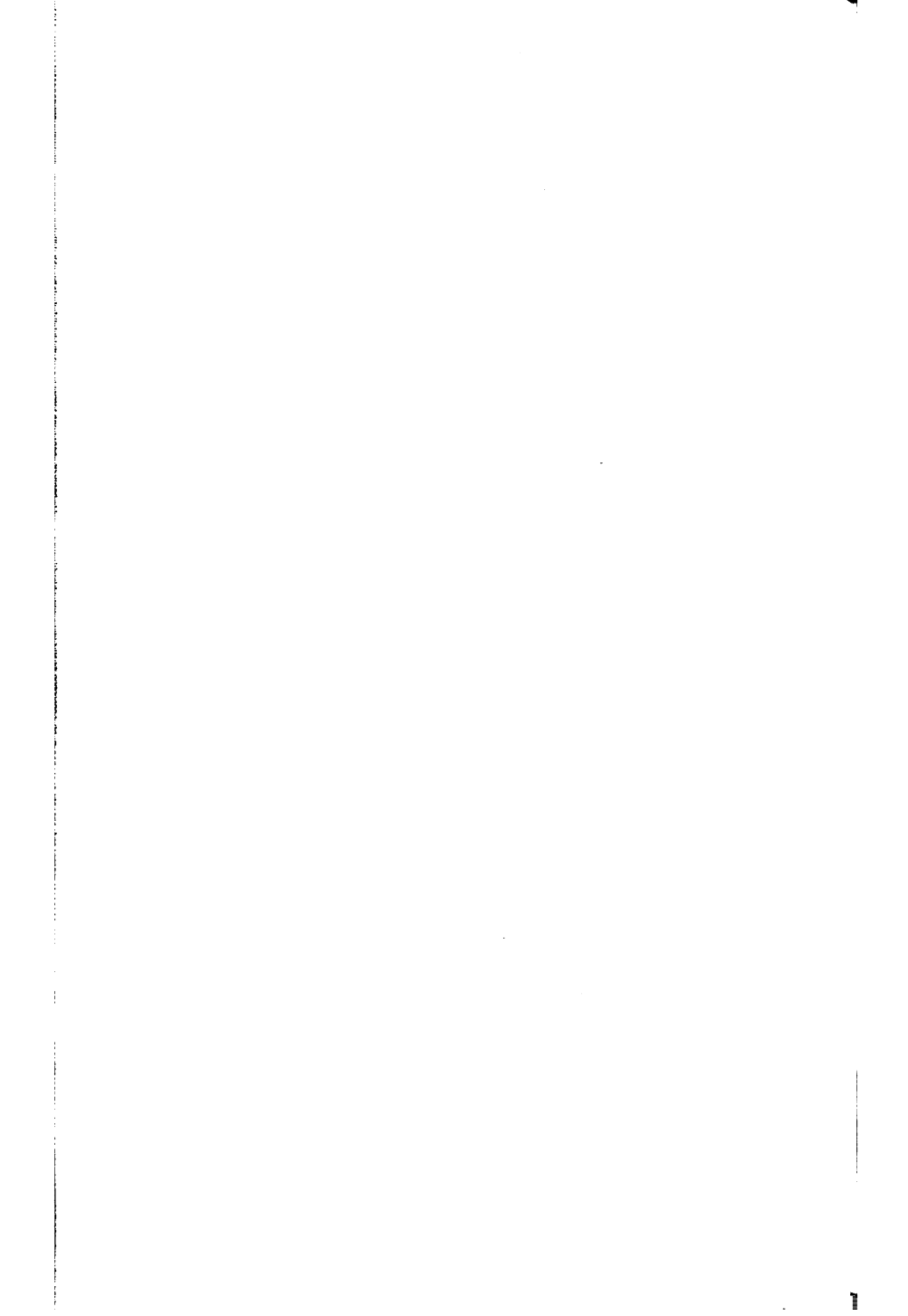
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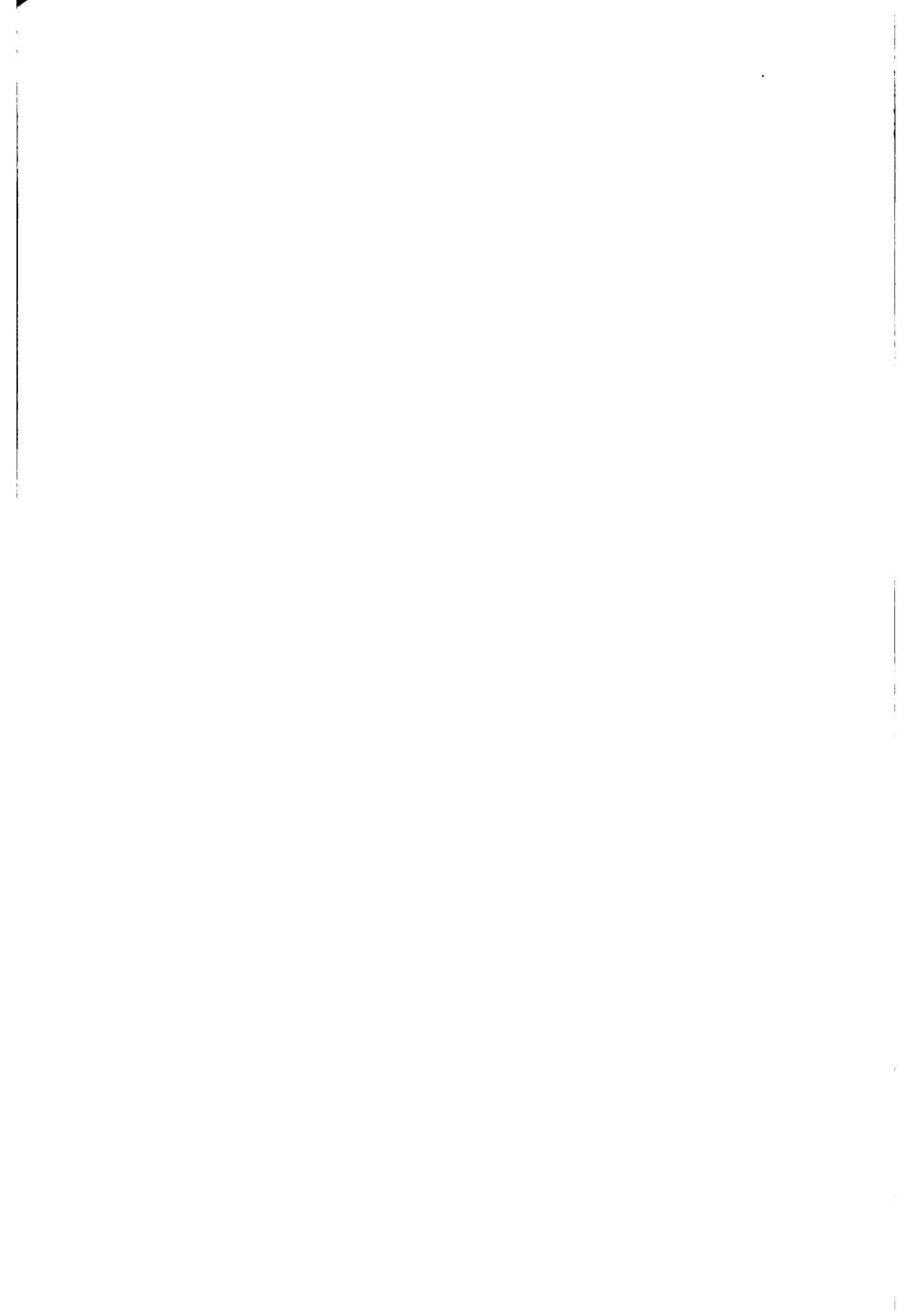
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The
LAW OF IRRIGATION

**COMPILED
AND
ARRANGED**

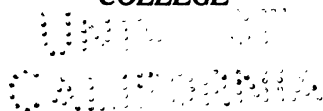
BY

CHARLES F. DAVIS

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and Constitutional Law*

AT

**COLORADO AGRICULTURAL
COLLEGE**



**FORT COLLINS, COLORADO
1915**

H-71-1-1-1
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Charles F. Davis

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PUBLISHERS PRESS ROOM AND BINDERY CO., DENVER, COLO.

PREFACE

In offering this book as a text to be used in those secondary schools of the West, in which a course is given in the law of irrigation, I make no pretense to any greater originality than goes with a careful compiling and arranging of matter gathered from many sources.

In presenting this subject to my classes at the State Agricultural College of Colorado, I have been obliged to use the lecture method because of the want of a text properly prepared to reach the grade of students that we find in these schools.

As far as I have been able to learn, the books written upon the subject of Irrigation Law have been prepared by lawyers for the use of lawyers and abound in discussion which though useful to the legal profession is confusing and of little value to the mind untrained in legal technicalities.

The monumental work of Kinney and the scholarly volumes of Wiel have left little to be desired by the lawyer upon this important subject, and in the preparation of the lectures which are here published I have made liberal quotations from these authors.

I have also gone to the original sources of information, such as the reported cases, bulletins and Rules and Regulations issued by different governments.

In drawing upon these sources I have avoided the citation of title of case and volume of report as this is of little use to the reader who has not access to such matter, and serves only to confuse the lay mind.

I have found that students, after hearing the lectures in class, desire a book which has been so prepared as to make its subject matter readily available for future use and reference.

Many farmers living in the irrigated area of our country have felt and expressed the need of such a book, hence its publication.

The lectures are based primarily upon the law as it is in Colorado, but care has been taken to point out wherein this law differs from the law in other states.

In view of the limitations of the human mind, it would, perhaps, be hoping too much to believe that the book is free from errors; great care has, however, been taken to reduce their number to a minimum. I shall esteem it a favor to be advised of any errors which may be discovered.

July 1st, 1915.

CHAS. F. DAVIS.

OUTLINE OF LECTURE 1

Statistics of water.

Three classes: Fly-off, run-off and cut-off.

Irrigation defined. Objects of this course.

Irrigation practice in very ancient times.

Large works in China.

Assyria, Babylon, Greece, Egypt.

Caesar in England. France and Spain. North America
in general. Peru.

Mexico. Arizona.

Modern irrigation works; in Egypt; Assuan Dam.

Conditions in Egypt. In India.

In Australia. In South Africa. In Italy.

An exact science in Italy. Three types in Lombardy.

The Grand Canal owned by Government. A corporation
enterprise.

Manner of dealing with consumers.

Mutual organization.

Three methods of regulating charges.

TO THE ABSTRACT

LECTURE 1

The surface of the earth receives water only by precipitation in the form of rain or snow. Whether a country is fit for the habitation of man depends upon the amount of water that falls upon it and the manner in which this water is distributed throughout the year.

The Weather Bureau of the United States made long and careful observations of the amount of precipitation at some 4,000 stations and has gathered data which enables it to calculate very accurately the total amount of rainfall, including snow, for the United States. The amount of water falling upon the land area of our country is placed at an average of 200,000,000,000,000 cubic feet per year; the amount falling upon the water area of the country is on the average of 215,000,000,000,000 cubic feet, making a total of five thousand million acre feet. To carry this water to the sea would require ten rivers the size of the Mississippi.

This precipitation is not evenly distributed over the whole country, many natural conditions, as the direction of the prevailing winds, the location and direction of mountain ranges, and other conditions work to produce great variations in the amount of precipitation on various areas.

The semi-arid region comprising about one-fifth of the whole area of the United States receives an average of about 30 inches of rain per year; the western two-fifths of the country receives only about 12 inches per year, and in many places but five or six inches.

Speaking in a general way, we may say that over one-half of the total rainfall is evaporated; about one-third flows into the sea; the remaining one-sixth is absorbed by the earth or consumed by the growing vegeta-

tion. These different portions of the water have been called the fly-off, the run-off, and the cut-off water.

The fly-off influences the climate; the run-off is found in our streams and is available for irrigation, domestic use, navigation and for power.

Irrigation may be defined as being the application of water to lands for the raising of agricultural crops and other products of the soil.

The object of this course of lectures is not to dwell upon the various economic phases of irrigation, nor to make an argument for the development of the Arid West by government as opposed to individual effort. I take the existing facts of irrigation as we find them today in our country, and after giving something of the history of irrigation and irrigation enterprises in other lands, I hope to give to the students of this college a working knowledge of the law which controls the large number of questions that have arisen over the appropriation and use of water in the Western United States. The greater number of you have lived in the irrigated area and already know of the importance of the subject, and doubtless have met with many of the perplexing questions arising out of the distribution of water. The relation of forests to rainfall falls within the province of Forestry.

We do not know in what part of the earth irrigation was first practiced. We do know that nations living several thousand years ago were engaged in the art and had developed large systems which carried water to many thousands of acres of land.

Irrigation was practiced long before authentic history in China, in India, in America, in Egypt, and in Italy. Enough is known to enable the historian to say with confidence that irrigation was practiced in Egypt at least 4,000 years ago. There are numerous references to the art in the Old Testament. Since 2627 B. C. the Chinese are known to have irrigated their lands for agricultural purposes. From very ancient times they have been among

the best irrigators in the world, producing the largest yield from a small acreage. The country has numerous canals of ancient origin, some of the largest works of the kind ever undertaken. The Imperial Canal is 700 miles long and large enough to be used, and is used for navigation as well as for irrigation. In India great reservoirs and canals were constructed many centuries before the beginning of our era and are still in use.

The Assyrians from very ancient times were noted for their skill and ingenuity in developing large irrigation systems, which converted by the use of water for irrigation the naturally fertile but arid valleys of the Euphrates and Tigris into productive fields.

The ancient city of Babylon was protected from the floods of Spring by a system of high cemented brick embankments on both banks of the Euphrates, and, to supplement the protection of these, and to store water for irrigation, a large reservoir was constructed 42 miles in circumference and 35 feet deep, into which the whole river might be turned through an artificial canal.

As evidence of the great antiquity of the art of irrigation it is interesting to note some of the provisions of the Code of Hammurabi.

This Code is a transcript of the laws of a king who ruled at Susa, in the valley of the Euphrates at about 2250 B. C.

From this Code I take the following:

“If a man neglect to strengthen his dyke and do not strengthen it, and a break be made in his dyke and the water carry away the farm land, the man in whose dyke the break has been made shall restore the grain which he has damaged.

“If he be not able to restore the grain, they shall sell him and his goods, and the farmers whose grain the water has carried away shall share in the result of the sale.

“If a man open his canal for irrigation and neg-

lect it and the water carry away an adjacent field he shall measure out grain on the basis of the adjacent fields.

"If a man open up the water and the water carry away the improvements of an adjacent field, he shall measure out ten measures of grain for each unit of land."

Fifty years before the Romans invaded Carthage, on the northern shores of Africa, a Syracusan general wrote that "the African shore was covered with gardens and large plantations with canals running in all directions, by means of which they were supplied with abundance of water."

In Greece are found remains of very ancient irrigation works. Herodotus tells of an aqueduct carried across a ravine 200 feet wide and 250 feet deep, by constructing a pipe line by drilling holes through cubic blocks three feet in diameter, fitting these blocks together by joints and laying them in cement and then binding them with iron bands. Another tunnel was drilled through a hill nearly a mile. Some portions of these very old works are still in use.

The Romans very early learned the art of irrigation from the Egyptians, and commenced a system from which has developed the vast works of the present day, which rival in size and service the greatest irrigation works of the English in India and Africa. In the time of Nero, Rome was supplied with water for domestic use in the city through nine aqueducts which had an aggregate length of 300 miles and delivered thirty cubic feet per second. One of these conduits was 40 miles long and 16 feet in diameter. Some of those old aqueducts are still in use.

When Caesar led his armies into Britain his soldiers aided by the conquered people constructed many large artificial water conduits the remains of which are traceable to the present day.

The Romans were the first to introduce irrigation in-

to France. In Spain, also, the earliest irrigation works were constructed by the Romans. When the Arabs overran the southern part of Europe and established themselves in Spain, they captured the water flowing from the swift mountain streams and carried it by long canals along the mountain sides to the plains where it was used for the raising of crops. Large reservoirs were constructed from which ran out a vast network of canals. These ancient works are still in use.

The art of irrigation was not unknown in America in very early times, and remains exist of systems constructed and very largely used by a race which has vanished and left no record of their having ever existed save the vast ditches and reservoirs which they constructed. The remains of these works show that there was applied in their construction nearly if not quite as great a knowledge of the laws of hydraulics as is possessed by man in our own day.

When we consider that those people knew nothing of the use of iron, and inspect the enormous tunnels and canals driven for thousands of feet through the solid granite, we are led to marvel at the work they did. They are a lost race. Students of ancient man and his work are certain that the present inhabitants of the country can be in no sense descendants of those early races. It is impossible to suppose that the native inhabitants of Peru and Bolivia, practicing irrigation as they do today, in the crudest manner possible, could have sprung from a race by whom aqueducts, canals, and reservoirs were constructed on an immense scale, and so well constructed that after unknown periods of time they still stand and are still servicable.

Peru, owing to its geographical position is naturally a semi-desert country. The early people brought water great distances and made fertile vast areas of this desert. An historian has written, "Canals and aqueducts were seen crossing the lowlands in all directions, and spread-

ing over the country like a vast network, diffusing beauty and fertility around them. Water was conveyed by means of canals and subterraneous aqueducts executed on a noble scale. They consisted of large slabs of free stone nicely fitted together with cement, and discharged a volume of water sufficient, by means of lateral ducts or sluices, to moisten the lands in the lower levels through which they passed. One of these aqueducts measured between four and five hundred miles. In their descent a passage was sometimes opened through rocks, and this without the aid of iron tools."

There seems to be no reason to doubt that irrigation was practiced in Mexico in the early part of the Christian era. The races who constructed these works have passed away but definite traces are still left in the form of conduits and canals, running through portions of the land which are now desert, and which tend to show that at some early date, that very land was cultivated to a high degree, and supported large populations.

The race found in Mexico at the time of the Spanish invasion were a branch of the Nahua people, whose remains are found in our states of Colorado, New Mexico, Arizona and Nevada.

In Arizona are found remains of canals which with their laterals exceed a thousand miles in length. One of the largest of the canals took water from south side of the Salt River and ran for several miles through a formation of hard volcanic rock. Without explosives of any kind, and with only such tools as belong to the stone age, the constructors of this ditch excavated a canal through the hardest kind of rock to a depth varying from twenty to thirty feet, and to a width of twenty feet. A party of Mormons have cleared out this ancient ditch and are now using it for its original purpose.

In 1899 and 1900 there was discovered in the lava beds of New Mexico what has been described as one of the most marvelous engineering accomplishments of an-

cient or modern times. The builders of these works cultivated thousands of acres of what is now arid land. Ditches wound in and out at the base of the mountain ranges, following the curves of the larger canals in such a way as to catch all the storm water before it was lost in the loose sand at the base of the mountains. Reservoirs were constructed at convenient locations and stored with water, from which it was led in cemented ditches across loose soil to its place of use.

Remains of irrigation works evidently built by these same people are found along the Colorado and Rio Grande rivers. The engineering skill possessed by them is evidenced by the following incident: A few years ago an engineer at field work, near Riverside, California, was running a level for a proposed ditch. He found much difficulty in establishing a satisfactory grade, so he returned to the stream and reconnoitered for a new start. To his surprise he found an old acequia, so old that he could scarcely make out its banks, and by carefully following its course he was surprised to discover that it brought him to the point at which he had originally wished to arrive with his ditch, and he built his new ditch on the lines of the old one. The grade was in every way satisfactory.

A writer has said "that although the tomb of Moses is unknown the traveler of today slakes his thirst at the well of Jacob. The gorgeous palaces of the wisest and wealthiest of monarchs with their cedar and gold and ivory, and even the great temple of Jerusalem, are gone; but Solomon's reservoirs are as perfect as ever. And if any work of this generation shall rise over the deep ocean of time, we may well believe that it will not be a palace or a temple, but some vast aqueduct or reservoir; and if any name shall hereafter flash brightest through the mist of antiquity, it will probably be that of the man who in his day contributed to the happiness of his fellows by the construction of a system to bring freshness to the desert."

The modern systems of irrigation in Egypt, India and South Africa have been developed by the English government.

In Egypt the whole water supply comes from the Nile River, and the greater portion of this water comes during the high water season. The Nile rises in the equatorial region of Africa at a distance of 3300 miles from the sea. The high water begins in July and continues until September. Vast quantities of sediment are carried down and deposited over the lands lying along its banks. The thickness of the layer of Nile mud which forms the soil of lower Egypt is found to be from forty to sixty feet. At Assuan the river has a normal flow of 100,000 cubic feet per second, but its flow varies during the year from 7,000 to 475,000 feet per second. The irrigated area of Egypt is at present something over 7,000,000 acres, and about twice as much can still be put under water. The method of irrigation in use consists in flooding the land to a depth of three to five feet about the first of September and of keeping this depth for about six weeks, when the water is drained back to the Nile, and the seed sown on the mud. The English are constructing large canals throughout the country and thus making it possible to irrigate at all times in the year, which makes it possible to raise two or more crops on the same land in each year, whereas the old method admitted of only one crop. It is only since the English have been in control that any thing has been done to construct reservoirs and thus distribute the water throughout a longer period.

The first great reservoir has been constructed at Assuan and other systems are projected.

The Assuan dam, which is built across the channel of the Nile, is 70 feet high, 6400 feet long, 23 feet wide on top, and 82 feet wide on the bottom. The depth of water in the dam when full is 65 feet giving a storage capacity of 3,326,000,000 cubic feet or 863,400 acre feet. The first cost of the dam was about eleven dollars per acre foot of

storage capacity. Engineers estimate that if the reservoir system can be made large enough to maintain a uniform flow of water throughout the year, it would at all times discharge about 257,230 acre feet per day, which is about one third of the total flow of the Nile.

The country is very flat, the grade of the river varies from one half to one third of a foot per mile, thus making it difficult to get fall enough in the ditches to get the water out upon the land. The water has usually to be raised from the ditch by some system of pumping or lifting. Each flood of the river fills the ditches to a greater or less extent with mud and this has to be cleaned out each year. From the fact that the government owns and controls all water in the country and supervises its distribution, there is very little litigation over water rights. The whole subject of irrigation is handled with a view to making it produce a revenue to the government. The farmer who uses the water has no rights and is not sure that having used the water one year he will be able to get it another year.

As noticed above, the English have been the people who have engaged in the modern development of irrigation in India. India has a rainy season during which great quantities of water are precipitated, but during the growing season the climate is hot and dry. Some of the greatest irrigating systems in the world have been developed here, the total expended by the British government being calculated in 1900 to have reached the sum of nearly \$350,000,000. The total area irrigated in 1901 was 23,000,000 acres; to this was added during the next six years about 5,000,000 acres. The total mileage of ditches in operation in 1907 was 3,259 miles in central and northern India, while in all India the mileage is 35,730 miles. Here as in Egypt, the government retains the title to the land and water, the whole being handled on a leasing system.

Australia has a large interior region where little rain falls during the growing season and where few rivers

flow across the country to furnish sources of water supply for irrigation; still even in this country the English have developed large systems which are bringing much land under cultivation.

The area of Australia is about the same as that of the United States exclusive of Alaska. The greatest trouble met with is to find the people to occupy the land, as the country is not very heavily inhabited. Each state in the federation forming the Australian Colony controls all matters relating to water within its boundaries. The state retains ownership of the water and administers its distribution, but the farmer is allowed to acquire title to the land. Charges for the use of water are very low, and the government offers very attractive inducements to get settlers upon the land.

There is still another English Colony where much has been done to develop irrigation. I refer to South Africa. The practice of irrigation has here been carried to a great extent, and the use of water for that purpose has been reduced to such a system, in the matter of law as well as practice, as to find few rivals even among older countries. Nearly all of this development has taken place since the Boer war. The whole country is dependent upon irrigation, and all local, colonial, and state governments are greatly interested in the subject. The government constructs the ditches and reservoirs, and having recovered the cost by the sale of the land that can be watered turns the system over to the owners of the land. but it retains the right to regulate all works and the water so far as to prevent disputes as to ownership and distribution.

Italy offers an example of the large use of water for irrigation under circumstances where the very life and prosperity of the state depends upon this system of crop production. In the valley of the Po river alone there are 5,000,000 acres under irrigation. Several other of the northern divisions of the peninsula are covered with a net

work of canals, crossing over and under each other, and bringing water to nearly every field.

The main water supply for the provinces of Piedmont and Lombardy, where more than half of the irrigated land in Italy is situated, is the Po river. This stream is of a torrential character for some distance from its source, but upon leaving the mountains it changes into a broad stream with a sandy channel, much like the Platte and the Arkansas. Farther down there is scarcely any fall and it becomes a broad, sluggish stream. Northern Italy is not an arid country; its average annual rainfall is nearly three times that of Denver; in some places rising even as high as ninety inches, but this water is not so distributed through the year as to be present when most needed.

The subject of irrigation has become more nearly an exact science in Italy than in any other part of the world, and some of the greatest students of the subject are found in that country. For a number of years the other countries, including our own, have sent men to study their methods and systems. It also leads in the laws and regulations governing, and the administration of the works. Their methods are more interesting to us than those of the English in the various colonies, because the country and its climatic conditions are more nearly like our own. There are laws regulating the diversion and use of water by individuals and by corporations similar to those in this country, and by associations of consumers, much resembling our irrigation districts. The government bears much the same relation to large projects that our government does to the Reclamation Service.

In the province of Lombardy, there are three types of irrigation: There is the Grand Canal, owned by the government, and used for navigation, irrigation and power; there is the canal owned by a corporation resembling the irrigation corporation company of the United States; and finally, there is the canal, owned and

operated by an association of farmers, like the mutual companies of this country.

So much has been borrowed from Italy in the development of our own systems of irrigation, and so much may still be learned, that I propose to discuss with some detail one example of each of these three methods of ownership.

The largest and oldest of the Italian government-owned canals is called the Grand Canal. It was begun in 1177, and for more than 700 years it has been used both for navigation and irrigation. It has a dam 918.5 feet in length, and from 31 to 58 feet in breadth, and extends diagonally up stream, but does not entirely cross it. Some idea of the skill exercised in the construction of this dam may be had from the fact that it has stood more than 200 years, though at times there have been tremendous floods in the river.

There are over 100 ancient rights to the use of water in the canal, which entitles the owners to the free delivery of the water covered by the rights, nothing being paid to the government for construction, administration or distribution of water to these old appropriators. No perpetual rights are now being sold by the government, the usual limit for concessions being thirty years. What water the government has to dispose of is sold to the farmers for \$180.00 per cubic foot for the entire year. \$140.00 being the charge for summer use only.

A corporation-owned ditch is the Villoresi Canal, which belongs to the type of ditches of the largest kind in our country. Its operation resembles that of the Amity and High Line ditches in this state. The arrangements for delivering the water have been worked to the finest details, and to greater perfection than in many of the large ditches of this country. The canal was planned and partly carried into effect five hundred years ago, but it was not until the latter half of the nineteenth century that the system was completed. After many difficulties,

and after many years spent in trying to construct the canal, a corporation offered to build it if the city of Milan would give a bonus of \$400,000. This the city did, and the work was pushed to completion. It is said that no irrigation works in America equal it in the strength and perfection of its engineering features. From the dam at the head to the smallest measuring box on the laterals the work has been planned and carried out with a careful consideration of the service it is to give. The dam is 950 feet long, 78 feet wide, and 12 feet high, and is built of concrete faced with cut granite masonry, and is protected at the foot by a masonry platform which extends down stream 50 feet. Both ends of the dam are protected by masonry wing-walls, to protect it from great floods. The management of the canal is of great interest to us. The territory served is divided into four main districts, each of which is supplied with one or more branches. The farmers who live under the branch canals are united into two classes of associations, one of which is a subdivision of the other. The larger of these two latter embraces the whole of a secondary canal, or all of one of its more important branches. The smaller association is composed of those farmers who take directly from field laterals, each lateral being separately organized. These laterals have representation in the larger society. The Italian Society for Aqueducts, which owns the main canal, does not, as a rule, retail water to the individual farmer. It sells it at wholesale to the larger association and it retails it to the consumer in the smaller society. The contracts are for six years. In selling water to these associations the canal company does not have a uniform price; it charges for the distance the water is carried. The charge for delivering water at the lower end of the canal is greater than at the upper end, because the expense and loss from evaporation and seepage are greater. The cubic meter (equal 35.31 cubic feet) is the unit of measure in large sales, in retail the liter per second (0.035 cubic feet

per second) is the unit. Among the members of the association made up of the final consumers no attempt is made to divide the water by measure. They make their division on the time basis, each one taking all the water belonging to his association for the number of hours each week as represents his share of the total payment for the water turned out to the association.

Under this canal water can be obtained in one of three ways: First, at an annual rental of \$166.00 per cubic foot, and this may be made a perpetual right for forty years by the payment of one dollar per year additional; second, by paying \$5.80 to \$7.75 a run of seven cubic feet of water may be had for one hour each week; third, a farmers' association may purchase water at wholesale on a special form of contract.

I spoke above of three forms of organization, the third being like our mutual ditch companies where a number of farmers develop their own ditch system and use their irrigation property jointly. The Vettabbia Canal affords an example of this kind. This is owned and operated by an association of farmers, there being fifty voting members; some of which members represent other associations of farmers. The members of the main association pay each year a certain amount to keep up the system, and each member is entitled to a definite amount of water. This canal is said to be the oldest in Lombardy, having been used as early as the year 1236.

Italy, like other governments of Europe which go into the irrigation business, seeks to make a profit to the state from the sale of water. The price charged for water in various districts is different, depending upon the distance the water has to be carried, and the competition offered by private companies. The unit of measurement is usually the cubic foot, and the time of service is from a greater or less portion of a year to a whole year, though for small fields it is charged for by the acre.

The uses to which the water may be put are for sum-

mer irrigation, for winter irrigation, power for operating farm machinery, power for industrial establishments, and water for making ice.

There is a regular tariff for each of these uses except the fourth, for which special agreements are made. The government does not guarantee the full amount, but in case the full amount is not furnished a proportional discount is made in the charge.

There are three methods for regulating the charges for use:

1. Charging according to the area irrigated.
2. For the quantity flowing through a simple opening in the side of a canal.
3. For the quantity delivered, measured by regulating either the pressure on an orifice or the depth flowing over a weir.

Irrigation is carried on at the present time in many parts of the world, but our time will not permit a more extended notice of the particular systems developed. We shall have to content ourselves with saying that in France, Spain, Algeria, England, in Assyria and China, in Siam and Japan, in many of the larger islands of the world, and many of the continental portions of North America the value of the artificial furnishing of water to supplement the not too adequate natural supply has been recognized and irrigation is becoming in all these countries a regular and systematic practice.

When we consider the large amounts of money spent by the British government in its various colonies in irrigation enterprises we realize that the English are far and away the greatest irrigators in the world.

Before taking up the subject in our own country, I shall devote a lecture to the study of the methods adopted and the laws enacted in Canada to conserve the water supply and to secure a fair and equitable distribution of it to the people of its semi-arid region.

OUTLINE OF LECTURE 2

Conditions in Canada described. Dominion Parliament controls in Alberta and Saskatchewan.

In British Columbia local legislature controls.

C. P. Ry. has largest enterprise. Calgary.

Duty of water in Canada.

Provisions of the Act of the Dominion Government.

Cubic foot per second legal unit of measurement.

Procedure to acquire water right.

Filing of application, what to show in it. Public notice.

Minister of interior.

Law in British Columbia.

Board of three members. Measurement of streams. How to acquire priority. Posting of notice.

License to use water appurtenant to land.

Right to enter lands of others.

Abandonment by non-use. License cancelled for waste.

Water Recorder may order repairs to prevent seepage.

Account kept with each source of supply.

Large enterprise may absorb smaller ones.

Judicial powers conferred on officers.

Officers may try criminal cases arising in use of water.

Location of arid and semi-arid regions of the U. S.

Mormons first practical irrigators in our country.

Greeley colony in Colorado.

Irrigation in California.

No fixed law to determine irrigation questions.

Origin of word Riparian. Riparian law in England.

English law brought to America. Modified to suit conditions.

Different states took different views.

Colorado doctrine. California doctrine.

Our conditions are different.. General government was slow to exercise control and many private rights had become vested.

What brought settlers to commence irrigating in the West.

Definition of vested right.

LECTURE 2

Canada has an area about equal to that of the United States, with a climate varying from the high temperate to the frigid of the Arctic Zone. Like our own country, it is humid in the eastern portion and arid or semi-arid in the western or mountain section, though the aridity is nowhere as great as in the dryer portions of the United States. While it is a colony of Great Britain, its government is very similar to our own, its General Parliament having about the same powers as our Congress. The different provinces each has its local legislature, corresponding to our State Legislature. In Alberta and Saskatchewan the general laws governing and controlling water are made by the Dominion Parliament, which deals with all irrigation rights and matters.

In the Province of British Columbia, the local legislature has greater rights of control, and their fundamental law, called the "Water Act of 1909," was enacted by the provincial legislature.

There are four provinces in Canada in which the subject of irrigation has received much attention, these being the provinces lying within the arid region. One of the greatest projects in the country is owned and operated by the Canadian Pacific Ry. Co., they having developed the work for the purpose of making a market for their lands, of which they owned something over twelve million acres. At the close of the year 1909 this company had expended over two and one-half million dollars. Irrigation in South Alberta dates from 1892, a series of dry years at that time having caused the government to turn its attention to the question of aiding the settlers in supplementing the occasionally small rainfall by artificial means. Surveys were made to ascertain where irrigation

could be applied with the best advantage, and it was shown that there were three extensive areas available—one of about 250,000 acres in the Lethbridge district; a second, near the junction of the Bow and Belly rivers, of 350,000 acres; a third, much larger, on the main line of the Canadian Pacific Railway, extending about 150 miles east of Calgary. This last body of land became the property of the said railway company and is known as the Bow Valley Irrigation Block.

Experience has shown that the duty of water, that is the amount of land that can be irrigated with a given amount of water, varies, first, with the nature of the soil; second, the age of the soil; third, the kind of crop; fourth, the weather conditions; fifth, the grade and condition of the canals; sixth, the distance the water has to be carried before application to the soil, and seventh, the experience and skill of the irrigator. In the Alberta Province, the duty is fixed at one cubic foot of water per second, flowing 153 days for 150 acres, the season being from May 1st to September 30th. The company delivers the water to each 160 acres, this amount of land being a farm unit.

Briefly stated, the provisions of the Irrigation Act are:

1. Water in all streams, lakes, springs, ponds or other surface waters is the property of the Dominion Government.

2. Companies or individuals may acquire the right to use water by complying with the provisions of the statute.

3. The uses for which water may be acquired are: First, for domestic purposes; second, for the operation of industrial enterprises; third, for irrigation, and fourth, for other purposes not above mentioned.

4. The clear and indisputable right to use the water is given, so long as it is applied to a beneficial use.

5. Such rights may be forfeited by abandonment, waste, or non-use.

6. Users of water rights shall have the protection and assistance of permanent government officials and all disputes and complaints shall be referred to and settled by such officials, whose decision shall be final.

The cubic foot per second is adopted as the unit of measurement of flowing water and the acre foot as the unit for quantities of water. The title to the water never passes out of the government. The rights of persons who had acquired a right to use water before the passage of the act are protected, others must proceed under the statute. The procedure is as follows—application is made setting forth the applicant's name, residence and occupation; his financial standing; source of water and point of diversion; probable quantity of water to be used; size and character of the works to be constructed; area and amount of land to be irrigated; value of the land with present improvements at the present time; the probable number of consumers; and, if water is to be sold, the rate at which it will be sold.

The application is filed with the commissioner. Permission in writing must be obtained to go along, across or under any road right of way. A plan on tracing linen must be filed showing in detail all the proposed works, and a more general plan showing the source of supply, the land to be irrigated and line of canal and reservoirs, if any. The application, plans, etc., are to be open for examination by the public at all times at the office of the commissioner. Public notice is given of the filing of the application and thirty days given for any one to protest the granting of it. The application and plans are examined by the government engineer and receive his approval. The commissioner then issues his permit to proceed with the work. The time for commencing the work is limited, and where it is to be in a reasonable time, the commissioner states what shall be a reasonable time.

The Minister of the Interior, corresponding to our national Secretary of the Interior, has many powers; he

may define the manner of measuring water; the duty of water; in what part of the year water may be used; fix the fees to be paid for licenses; regulate the amount that may be diverted from any stream; fix the rate for which water may be sold by appropriators; authorize some person or officer, whose decision shall be final, to decide what is surplus water under the Act.

As has been said above, the province of British Columbia has greater local control of water than has Alberta. Its Legislature passed a "Water Act" in 1909, which was amended in 1912 relating to diversion, acquisition and use of water. The same units of measurement as in Alberta were adopted.

One section of the Act is of sufficient interest to warrant full statement here.

"There shall be and there is hereby created a tribunal, named the Board of Investigation, for the purpose of hearing the claims of all persons holding or claiming to hold records of water or other water rights under any former public Act or Ordinance, of determining the priorities of the respective claimants, of prescribing the terms upon which new licenses, replacing records under former Acts, to take and use water pursuant to this Act will be granted, and generally of determining all other matters and things in this part of this Act, or by the Lieutenant Governor in Council referred to the Board for determination."

The Board consists of three members, one being the Comptroller of Water Rights, the others appointed by the Lieutenant Governor.

The Minister may cause measurements to be taken upon any stream to determine the flow at low water, high water, and flood times, and permissions to use water from any stream are to designate at what stage of the stream the water is permitted to be taken.

Priority of right to use water may be acquired for the following purposes: First, domestic use; second, mu-

nicipal purposes; third, irrigation purposes; fourth, industrial use; fifth, power; sixth, mining; seventh, clearing streams for driving logs; eighth, lowering the level of any standing water for the purpose of reducing the same. No license may be issued for more than one purpose. No license may be issued to give the right to sell, barter, or exchange water, or to sell power generated by water.

A person intending to apply for license to divert water is required to post a notice near the proposed place of diversion setting forth such intention. A right to change the point of diversion or to change the course of a ditch, flume, or other conduit, is required, by making application to the Comptroller and giving such notices, and complying with such terms as he may direct.

“Whenever a license is granted for the use of water upon any particular hereditaments, such license shall be deemed to be appurtenant to the hereditaments in respect whereof such license is granted, and shall pass with any demise, devise, conveyance, alienation, or transfer of such hereditaments.”

A licensee whose license includes the right to store water, and whose works have been approved, may proceed with the construction of the works, and permission is given to turn the water stored back into the public stream and to recapture it further down the stream, all expense of measuring the water into and out of the stream to be borne by the reservoir company.

Any licensee may enter upon, take, use, and occupy so much of the lands of others without their consent as may be necessary for the construction, maintenance and operation of his works in or upon such land, proper compensation being given for the land so taken. Whenever a license is issued it is understood to be for a beneficial use of the quantity of water permitted to be taken and no matter how much the permit allows to be taken, no more shall be diverted than can for the time being, be

put by him to a beneficial use. If it be satisfactorily shown to the Comptroller that the water or any part thereof is not being beneficially used, the party making the showing may be granted a license to use such portion of the original licensee's appropriation. Every license is subject to cancellation for waste or for non-use, or for non-compliance with the regulations of the Comptroller. Though the appropriator has conformed in every way with legal requirements as to securing his right and the construction of his works, the Water Recorder is given the power at all times to order reasonable repairs, alterations and improvements in the works to prevent excessive loss by seepage.

Mr. Kinney, in speaking of the general operation of the law, says, "The Water Law is drastic and covers the subject of the title to and the use of waters in its most minute details. In fact, I consider it one of the most effective statutory laws upon the subject in existence."

The government has endeavored, by a careful system of surveys, to determine the actual supply of water available from each source. One of the main features of the work was to determine, by careful measurements and gaugings, the actual supply of water available from each stream, so as to know what there was to grant, and thus prevent the wasting of money in places where the owners cannot hope to secure water without taking what properly belongs to prior appropriators. This system has entirely prevented wildcat enterprises. A debit and credit account is kept with each stream. It is debited with what the measurements show it can be depended upon to furnish, and credited with each quantity allowed to be taken out. When the whole of its capacity is found to be taken, no other appropriations will be permitted to be made from it. An examination of the register kept with the stream will show at any moment just how the account stands.

We are to remember that no title can be secured to the water; that remains always in the government; all

that can be had is the right to use—the usufruct of the water, and this can be retained only by strict conformity to the requirements of the law as to use.

Under the right of eminent domain a larger enterprise may take in a smaller in the same class of appropriation, even though the owner of the smaller may not wish to sell. This affords an opportunity for the formation of a monopoly of the business by a large concern. If a concern proposes to develop an irrigating system for the purpose of selling water to consumers, it must, upon making application for right to divert water, show that it has secured actual contracts to purchase all of the water which it proposes to take, for it will not be permitted to take more than it shows it has a real, present use for.

Another feature which deserves attention from students in this country is the judicial powers conferred upon administrative officers. In our country if the Water Commissioner, the Division Superintendent, or the Engineer discovers a violation of the law he must bring the offender into the regularly established courts of the state to be tried. In British Columbia, each of the officers corresponding to those just named is empowered to sit as a judge in a court of his own to try civil cases involving any of the laws pertaining to the appropriation and use of water and to decide them according to the law and the evidence. They are empowered also to try summarily criminal cases arising out of the same subject matter, and may inflict a fine or send the offender to jail, the only limitation being that the fine shall not exceed \$200.00, nor the imprisonment three months; but both the fine and imprisonment may be joined in one sentence.

A fact that speaks much for the Canadian method of handling the water question is that in the five first years of its application, the years which usually give rise to much litigation in our country, there has been scarcely a case over such matters coming before the courts of the Provinces. A system that can be inaugurated and carried

into effect over a large territory, dealing with interests that come so near home to every man in the community, adjusting old, previously acquired rights, without arousing animosities which are aired in the courts must have something vital and well directed in its conception.

Having made the circuit of the countries in which irrigation is being practiced; having presented a hasty view of the history of the art; and having presented in detail some of the methods adopted by the foremost among advanced nations, we may now profitably turn our attention to the subject of irrigation in the United States.

You are familiar with the fact that extending from the shores of the Atlantic to within a few hundred miles of the eastern base of the Rocky mountains the annual rainfall is sufficient in quantity, and is so distributed throughout the year as to permit the growing of crops without resorting to artificial means of supplying water. Commencing at a north and south line across the country at about the longitude of Lincoln, Nebraska, a section of country is found which extends thence west to the Pacific ocean, in which climatic conditions are such that, excepting in certain more favored small areas, the rainfall is either too slight, or it comes in the early and late months of the year, leaving the months of the growing season with an inadequate supply of moisture to mature crops. The eastern part of this last named region does not feel the shortage of summer moisture so severely as the portion lying close to the mountains and in the inter-mountain section, and is hence called the semi-arid region.

The states along the eastern base of the Rockies and those between the Rockies and the western coast ranges suffering the most from lack of summer moisture are called the arid region of North America, or more accurately of the United States.

The states included in this section of our country are Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada Utah and Wyoming and the eastern portions

of Oregon and Washington. The semi-arid region includes the states of Kansas, Nebraska, North Dakota, Oklahoma, South Dakota and Texas, and the western portions of Oregon, Washington and Northern California. The degree of aridity in these various states, and in different parts of the same state varies greatly.

It will be our task in the remaining lectures of this course to study the conditions of the climate in the Arid Region of the United States; to review the history of its application of water by artificial means to supplement the small supply afforded by nature; to trace the development of the system of laws by which the whole subject is now controlled, and to show what the national government is doing to assist the settlers in this vast region to convert the desert into a fit abiding place for man.

To the Mormons who entered the present state of Utah in the year 1847 is due the credit of being the first white men who practiced irrigation in our arid West.

The first co-operative and associated effort to construct irrigation works outside of Utah was made in the year 1870 by the people forming the Greeley Colony in Colorado. Some small ditches had been taken out by individual settlers to water lands lying near the streams, in various parts of Colorado some years before the Greeley Colony was formed and enough had been done to prove that the desert was not barren because of the lack of fertility in its soil, and to show that by the application of water by means of ditches unheard of crops could be obtained. All that was lacking was men with faith in the future and capital to invest to develop the vast and increasing systems of irrigation we see today in all parts of the arid West. In the early seventies, irrigation was started in California, the Riverside Colony having settled about seventy miles east of Los Angeles in 1871. It is hardly necessary to trace the various beginnings of the art in the different states; our purpose is to study the body of laws to which the art has given rise. The people

of our country had no experience to guide them in law making to fit the subject. Nothing had occurred in the history of the settlers of the United States to establish the nature of the rights which were to be protected. No body of precedents was to be found in the law books to guide the judges in the settlement of the questions which at once began to call for their attention. Many of the questions were what are known to the lawyer as questions of the first impression. The legislatures were not well enough informed to enable them to enact proper laws for the guidance of the people and their courts. There was for a time an apparent race between the courts and the law-making bodies to see who would first announce the correct legal principles. It is not surprising that for a number of years we find the higher courts receding from the ground at first taken and trying to adjust their decisions to the experience of irrigators.

From the word in the Latin, *ripa*, meaning the bank of a stream, we get the word *riparian*.

In England, where the serious question concerning water is how to get rid of the excess by drainage, long accepted custom had ripened into a law declaring that water in a stream must be allowed to flow as it had been wont to flow. That if a person owns land through which or bordering on which flows a stream, he has a right to insist that such stream be allowed to flow in its old and accustomed channel without being diminished in quantity or changed in quality. He may have had no use which he could make of the waters of the stream, but simply to satisfy his desire to see it flow by was reason enough to prohibit others above him from diverting the waters from the stream, and those below from constructing dams so as to set the water back over its banks upon his ground. This was known as the right of the riparian owner, and his rights as riparian rights.

The law of England having been brought by the colonists to America as a part of their heritage from the

mother country, the same view as to riparian rights was enforced here, and in all of the Eastern and New England states the law remains to this day as it was and is in England.

When, however, the subject of irrigation began to attract attention in the West, it was soon made evident that there would of necessity have to be some modification of this law as the very nature of the business would require the diversion of the water of a stream, and that such water if it returned to the stream at all might not return until it had passed through the soil for many miles, thus making it impossible to respect the riparian rights of those below the point of diversion.

As different states took up the subject and state legislatures sought to frame a code of laws pertaining to irrigation two diametrically opposite views of this subject were adopted. Some states, like our own, struck right at the root of the matter and declared that the doctrine of riparian rights was not to be recognized. Other states, as California, sought to take a middle ground and while abrogating to some extent the law of riparian rights, endeavored to keep that law in force as to certain conditions.

Thus we have two systems in the different Western states, but experience is showing that the whole doctrine of riparian rights must finally be abandoned.

A condition exists in the United States different from that found in any other country. Elsewhere, at the very inception of the problem of irrigation the government has assumed ownership and control of the waters of the country and has formulated rules to govern the taking and using of the water upon land. Thus those countries have been free to a large extent from the perplexing questions of conflicting rights to the use of water from a certain stream and many other questions. In our country, however, the first settlers in the arid region were not interested in agriculture. They were brought hither by the

lure of the mines, and from mining turned their attention to stock raising over the almost limitless grass-covered prairies. Occasional settlers entered upon land along the banks of the streams and constructed, each for himself, short ditches to irrigate the small tracts they were seeking to cultivate. As the project of farming by means of the artificial application of water to the growing crop was found to be practicable and highly profitable, more ambitious projects were started; a larger or smaller number of farmers joined forces to construct larger and longer ditches to carry the water farther from the stream and to cover larger areas. Gradually the attention of capital was drawn to the subject and men were soon found who were far-sighted enough to foresee the possibilities presented and ditches extending many miles, carrying many hundreds of feet of water, and irrigating thousands of acres of land were projected and built. In many instances all the waters of a stream were appropriated and used; in some instances much more was claimed than the stream had ever been able to furnish. During all this time, while vested rights were being acquired government paid little or no attention to the subject. Finally when government did turn its attention to the growing importance of irrigation, the time had passed when it could assume that complete control which obtains in other countries.

I have used the term vested right. In law the term as here used, means a right which is complete and consummated, so that nothing remains to be done to fix the right of the person to enjoy it. No man, nor even the government, can question a vested right. The only question that can arise is whether the right is truly vested. From the condition above described has arisen a vast amount of litigation and the end is not yet.

OUTLINE OF LECTURE 3

Classification of waters.

Navigable streams public and under control of U. S.

Water course defined.

Several points in definition: there must be a stream, a channel, a bed and banks. Not a mere chance drainage way.

Tributaries are water courses.

Springs defined. Appropriation of springs.

Waste water. Subterranean waters.

Seepage water.

Each state decides where title to land covered by water rests.

Navigable streams meandered.

There can be no title to water so long as it flows naturally.

Use for navigation is paramount, and to some extent controls non-navigable tributaries.

Law requiring fish screens is valid exercise of police power.

State ownership and public ownership is same.

Different states have by statute or constitution declared the public ownership of water. This is state control as distinguished from government control.

An appropriator owns the right to the use of the water, not the water. The right to use is a property right.

Constitutional provisions of different states.

Take especial notice of the meaning of the language as used in Colorado constitution and statute.

Notice the effect of these provisions on the doctrine of riparian rights.

Peculiar position of the Court in Idaho as to riparian rights and appropriation.

Dedication in Wyoming very complete.

LECTURE 3

WATERS:

Public or Navigable.

The sea.

Great Inland Lakes.

Rivers Actually Navigable.

Waters designated by the statutes of a state as Public.

Private or Non-Navigable:

Surface:

Rivers and Water Courses Non-Navigable:

On the Public Domain of the U. S.

On lands owned by a state.

Small Lakes and Ponds.

On the Public Domain of the U. S.

On land owned by a state.

Flood or Storm Waters.

Swamps and Marshes.

Surface Water Proper.

Subterranean:

Underground Water Courses.

With known and defined channels.

With unknown or undefined channels.

The Underflow of Surface Streams.

Artesian Waters.

Percolating Waters.

Diffused percolations.

Percolations tributary to Surface Water Courses.

Those Tributary to Underground Reservoirs.

Seepage Waters.

I give above a classification of the waters of the earth, taken bodily from Mr. Kinney's larger work on Irrigation. We shall have frequent occasion to refer to certain portions of this and to notice the relation of those waters which are used for irrigation to the other waters.

It will not be necessary for our purpose to enter upon a complete analysis of this table. It will be sufficient to notice the first broad division into public and private waters.

All rivers and streams which are of sufficient capacity for useful navigation are public, and are subject to the same general rights which the public exercise in highways by land.

The same rule governs in the distinction between public and private lakes and ponds. If the lake is navigable in fact, its waters and bed belong to the state, in its sovereign capacity.

In the Western states certain waters have, either by constitutional provision or by legislative enactment, been dedicated to the public, or in other words to the state, in such states the water flowing within their boundaries belong to the state and thus form a third class of public waters.

To the class of private waters belong the large number of inland, fresh water, non-navigable streams which everywhere intersect the surface of the country, commencing with the almost imperceptible rill upon the mountain side and including all the tributaries with which it unites itself until it reaches the sea or a navigable stream. It is to this vast network of inland waters that our attention will necessarily be chiefly directed.

What is a water course? As in many places in the law, we must look to the expressions of courts acting in their judicial capacity for a definition. Many such definitions are to be found; the one which seems to be as clear as any and which meets all of our requirements was given by the Supreme Court of Idaho. "A water course,"

says the honorable judge, "is a stream of water flowing in a definite channel, having a bed and sides or banks, and discharging itself into some other stream or body of water. The flow need not be constant, but must be more than mere surface drainage occasioned by extraordinary causes; there must be substantial indications of the existence of a stream which is ordinarily a moving body of water."

In this definition we are to notice several points; to be considered a water course there must be a stream; a channel, a bed and banks. The mere fact that a gully or depression in the ground furnishes a place for the discharge of water from heavy rains and is dry as soon as the excess water has run away does not make it a water course. While the stream may not be present on the surface at all times of the year, there must be a well defined track through which the water will and does run during a part of every year. Some states have by statute defined the term; our state has not done so. Should the stream by reason of floods, get beyond its accustomed banks and spread out over the adjacent land, it is none the less a water course. Riparian rights can only exist on the natural water courses.

The tributaries of natural water courses are all water courses; and streams, both surface and subterranean, which contribute their waters, in however small amounts, to the flow of the main streams, are water courses.

Springs are those places where water issues naturally from the surface of the earth. They are the principal sources of natural water courses. If the water simply arises to the surface and does not flow off the water is treated as subterranean.

In most of the Western States statutes provide that the owner of land upon which springs arise shall have the first right to the use of the water to the extent of his actual needs before others can claim the right to the water.

Waste water may be of one of three classes: First,

it may be water that the user has actually wasted by allowing it to run beyond his control; second, it may be water which has been used and which after running over the land has run off and escaped; third, it may be water which from some unavoidable cause escapes from ditches and canals or other works by overflow or seepage.

Subterranean or underground waters are those which flow, percolate, or lie under the surface of the earth, not visible to the eye. These waters will demand a much fuller discussion in a later part of our work. Seepage waters may be defined as water which having escaped from irrigating works sinks into the ground and reappears on the surface at some lower level. These also will call for larger discussion at the proper place.

Owing to the limits of space to which I am confined, I shall not enter upon the discussion of the nature and extent of the ownership of the public in public waters, but shall limit my discussion as nearly as possible to the subject before me, the irrigating waters of the country.

It will be sufficient here to say that wherever a stream furnishes opportunity for navigation of vessels above the size of pleasure boats, the interest of the public in such stream as highways of commerce endows them with a character which justifies the government in assuming control of them. How the conflicting interests of claimants for navigation rights and for irrigation are adjusted will be matter for later discussion.

As to where the title rests in land covered by the waters of a navigable stream we may say that it is left to each state to settle that question within its own borders, and that different states have treated the matter differently; some carrying the title to land adjacent to the stream to the middle line of the stream; others retaining title to the bed of the stream in the state.

Some of the navigable streams have been meandered by the General Government, in the course of the survey of the public lands. When the government meanders any

body of water or a water course and sells the adjoining land to settlers, and the water is navigable, the title to the land between the meander lines vests in the state in which it lies, to be held in trust for the people of the state. The General Government retains title to no part on either side of the meander line.

So long as water flows naturally, there can be no title to it either in the public, the state or an individual. It is like a wild animal; it must be reduced to possession before it can become the subject of ownership.

Where the waters are public waters of the United States, the right of the public to navigate such bodies of water is paramount and superior to all other rights to use the water. But where the waters are strictly public navigable waters of a state, the relative right of navigation with other uses depends upon the laws of the state. If, however, the state stream is a tributary of a navigable stream below under the jurisdiction of the United States, if their use would tend to injure or destroy the navigation of the lower stream, the use above must yield to that below. The waters of any navigable stream may be appropriated and used for beneficial purposes, where the laws of the states in which is the appropriation permit the same and the appropriation does not tend to interfere with the navigable capacity of the stream.

A law is valid, under the police power of the state, which provides that at the intakes of all canals and ditches, where water is diverted from the natural stream for irrigation or other use, the owner of such ditch or other works shall construct screens to prevent the fish in the stream from going down the canals.

To say that the waters of the state are the property of the state, or to call them the property of the public means the same thing. When, therefore, dedication is made in either of these terms, the state in its sovereign capacity and not as owner is meant, whence it follows that the office of the state is regulative and administra-

tive only. When the people of the states in the arid region placed in their constitutions the expression dedicating all the waters in the state to the public they were evidently seeking to offset the common law provisions for the recognition of riparian rights, and as far as possible to do so in a State Constitution, to sanction the custom of appropriation for beneficial use. Some of the states not having placed this expression in their constitutions, have adopted statutes to the same effect. The dedications to the public most absolute in terms are found in those states which are most arid, the evident intent being to abolish the common law theory of riparian rights as far as possible. By this doctrine it seems that the use of the water is in the public, or the state, which in turn, under its police power, may prescribe by legislative action the details as to how an individual or corporation may acquire the right to the use of a portion of the water. This rule is called the doctrine of state control, as distinguished from the doctrine of government control.

As to the rights of the appropriator, in a state like Wyoming or Colorado, where there is an absolute dedication of the waters to the state, the courts have held that the appropriator secures a right of use, which has been held to amount to a property right, and not a title to the running water itself. The title to the water of the appropriator fastens, not upon the water while flowing along the natural channel, but upon the use of a limited amount for beneficial purposes in pursuance to an appropriation lawfully made and continued.

The General Government adheres to the common law doctrine of riparian rights, hence as to the lands to which it still retains title this doctrine must be recognized, and no dedication of waters to the state can defeat the United States of this right.

The states which have made the dedication by constitutional provision are California, Colorado, Idaho, Montana, New Mexico, North Dakota, Washington and

Wyoming. Those which have secured the same end by legislative enactment are Arizona, Nebraska, Nevada, Oklahoma, Oregon, South Dakota and Utah. Because of the use that the information will have for us in the later part of our discussion, I state briefly the form of the various dedications appearing in constitution or statute or both, in the above-named states.

The Constitution of California provides: "The use of all water now appropriated, or that may be hereafter appropriated, for sale, rental or distribution, is hereby declared to be a public use, and subject to the regulations and control of the state, in the manner prescribed by law.

"The right to collect rates of compensation for the use of water supplied to any county, city, city and county, or town, or the inhabitants thereof, is a franchise and cannot be exercised except by authority of and in the manner prescribed by law."

You will notice that the dedication to the public is limited and applies only to waters already appropriated or that might be thereafter appropriated for sale, rental, or distribution.

It does not apply to the water running in the stream, nor to water appropriated by individuals or corporations for their own use. It does not interfere with riparian rights.

The courts of California have declared under this provision that the distribution of water under the district irrigation law of the state is a public use.

Realizing the weakness of this provision, the Legislature of California, by the Act of April 8, 1911, amended the civil code to read that "All water or the use of water within the state is the property of the people of the state."

The Constitution of the State of Colorado goes much further in declaring: "The water of every natural stream, not heretofore appropriated, within the State of Colorado, is hereby declared to be the property of the public,

and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided.

"The right to divert unappropriated waters of any natural stream for beneficial uses shall never be denied."

The use thus dedicated to the people is, however, subject to two limitations upon the part of the United States, to-wit, that the navigability of any stream is not to be destroyed or materially interfered with; and the right of the U. S., as owner of lands within the state, which border upon a public stream, to the continued flow of its waters, so far, at least, as may be necessary for the beneficial uses of the government property, must not be impaired. Notice that in Colorado, by this dedication, the waters of the stream, so long as they remain in the stream, belong to the public. The only office of the state is that of regulation under its police powers.

The Colorado court has held that a constitutional provision such as the one just cited cannot give an appropriator of water for irrigation a priority as against appropriators for other purposes, acquired prior to its adoption.

It will be observed that the Colorado dedication entirely does away with the doctrine of riparian right; but an announcement by the United States District Court, sitting for Colorado, is of interest as it maintains this right in the face of the Constitution of the State. In the decision referred to the judge says: "There is nothing in the Constitution of Colorado, or in the law relating to irrigation, which modifies or changes the rule of the common law that for manufacturing, mining, or mechanical purposes each riparian owner may use the waters of running streams upon his own premises, allowing such waters to go down to subjacent owners in their natural channel." He held that the waters of a certain stream were appropriated when certain placer mining claims were located, saying, "and the owner of the claims is entitled to have them run, without diminution, subject to the reasonable

use of other riparian owners higher up on the course of the stream."

Idaho makes the dedication of waters, by constitutional provisions, as follows: "The use of all waters now appropriated, or that may hereafter be appropriated, for sale, rental, or distribution, also all waters originally appropriated for private use, but which, after such appropriation, has heretofore been made, or may hereafter be sold, rented, or distributed, is hereby declared to be a public use, and subject to the regulation and control of the state, in the manner prescribed by law." It is also provided that the right to collect water rates is a franchise; that the right to divert and appropriate the unappropriated waters of any natural stream to beneficial uses shall never be denied; that priority of appropriation gives the better right; and the regulation of priorities as to the uses of water.

A statute of Idaho has this provision, "All waters of the state when flowing in their natural channels, including the waters of all natural springs and lakes within the boundaries of the state, are declared to be the property of the state."

The Supreme Court of Idaho has taken a peculiar attitude in view of the express abrogation of riparian rights in the constitution and in the statutes of the state, by declaring: "That in that state a riparian owner upon the streams of the state, both navigable and non-navigable, takes to the thread of the stream, subject, however, to an easement for the use of the public." Montana in her constitutional provision on this subject, differs from California only in the provision as to right of way, which reads as follows: "The use of all water now appropriated, or that may hereafter be appropriated, for sale, rental, distribution, or other beneficial use, and the right of way over the lands of others for all ditches, drains, flumes, canals, and aqueducts necessarily used in connection therewith,

as well as the sites for reservoirs necessary for collecting and storing the same, shall be held to be a public use."

Here as in California the dedication is of only a portion of the waters.

New Mexico makes a total dedication, in these words in her constitution: "The unappropriated water in every natural stream, perennial or torrential, within the State of New Mexico, is hereby declared to belong to the public."

An Act of the Territorial Legislature of 1907, after repeating this language, adds, "and are subject to appropriation for beneficial use."

The Constitution of North Dakota has this: "All flowing streams and natural water courses shall forever remain the property of the state for mining, irrigating, and manufacturing purposes."

A statute of the state provides: "All waters within the limits of the state from all sources of water supply belong to the public, and, except as to navigable waters, are subject to appropriation for beneficial use."

In the state of Washington this is the constitutional provisions: "The use of the waters of this state for irrigation, mining, and manufacturing purposes shall be deemed a public use."

You will notice that this is but a partial dedication, or rather a dedication of but a part of the waters. All that is granted to the public is the use of the water appropriated for the purposes specified; when so used the waters are said to be taken for a public use.

The Wyoming Constitution reads: "Water being essential to industrial prosperity, of limited amount, and easy of diversion from its natural channels, its control must be in the state, which, in providing for its use, shall equally guard all of the various interests involved."

"The water of all natural streams, springs, lakes, or other collections of still water within the boundaries of

this state are hereby declared to be the property of the state."

This is the most complete provision to be found in the constitutions of the states, and in its dedication it follows very closely the Constitution of Colorado. It goes further, however, in dedicating the waters of springs, lakes, and other collections of still water. You will observe another and important difference; in Colorado, the rights of the public are subject to the right of appropriation; in Wyoming, the rights of the state are subject to nothing; they are under the full control of the state. The Court of Wyoming has said, indeed, that the right of appropriation may be denied, "when such denial is demanded by the public interest." Wyoming has entirely abrogated the doctrine of riparian rights.

Having called attention to the constitutional provisions on this subject in those states whose constitutions deal with it, it may be said that the following states have left the matter to their legislatures and whatever has been done has been by legislation rather than by the direct act of the people themselves in the adoption of their constitutions.

In Arizona, the following statute is found: "All rivers, creeks, and streams of running water in the Territory of Arizona are hereby declared public, and applicable to the purposes of irrigation and mining as hereinafter provided."

The statute of Nebraska reads: "The water of every natural stream not heretofore appropriated, within the State of Nebraska, is hereby declared to be the property of the public, and is dedicated to the use of the people of the state, subject to appropriation."

The Court of Nebraska has held that this Act abrogates the law of private riparian rights as it existed in the state before the passage of the Act, but that the Act could not, and did not, have the effect of abolishing riparian rights, which had already accrued.

Nevada has the following law: "All natural water courses and natural lakes and the waters thereof which are not held in private ownership belong to the state, and are subject to regulation and control by the state."

A later Act declares that waters not held in private ownership belong to the public, and that the use thereof is a public use.

Later still, in 1907, these same provisions were practically re-enacted in these terms: "All natural water courses and natural lakes and the waters thereof which are not held in private ownership, belong to the state, and are subject to appropriation for beneficial use."

OUTLINE OF LECTURE 4

The distinction into Colorado doctrine and California doctrine is not accurate.

Effect of dedication.

Distinguish between owning as sovereign and as proprietor.

Rights of the General Government.

How far state control may go.

Law of water is far from settled.

When riparian rights attach to land bought from the government.

Common law riparian rights grow out of ownership of land strictly adjacent to stream.

There is no priority of right among riparian owners.

Is want of water to irrigate a natural want?

View taken by courts in different states.

All states in arid region adopted riparian doctrine with the common law. Doctrine of appropriation now causes conflicts. Some states entirely did away with riparian doctrine; some try to reconcile the two doctrines.

How far the water of a stream may be appropriated and still recognize the riparian doctrine.

Use must be reasonable with reference to the rights of all.

What is reasonable? Depends on facts of each case.

Circumstances which must be considered.

General conclusion from the foregoing discussion.

Extent of riparian rights with relation to size and shape
of body of land.

Mr. Kinney's summary.

Government has been dilatory and allowed matters to
get into confusion.

LECTURE 4

The Oklahoma statute recites that "The unappropriated waters of the ordinary flow or underflow of every running stream or flowing river, and the storm or rain waters of every river or natural stream, canyon, ravine, depression, or watershed within those portions of the State of Oklahoma in which by reason of insufficient rainfall, or by reason of the irregularity of the rainfall, irrigation is beneficial for agricultural purposes, are hereby declared to be the property of the public, and may be acquired by appropriation for the uses and purposes and in the manner as hereinafter provided."

The Oregon statutes on this subject are as follows: "All water within the state from all sources of water supply belongs to the public." "The use of the water of the lakes and running streams of the State of Oregon, for general rental, sale, or distribution for purposes of irrigation, and supplying water for household and domestic consumption, and watering of live stock upon dry lands of the state, is a public use, and the right to collect rates or compensation for such use of said waters is a franchise." "The use of the water of the lakes and running streams of the State of Oregon for the purposes of developing the mineral resources of the state and to furnish electric power for all purposes, is declared to be a public beneficial use and a public necessity."

South Dakota puts it in this way: "All waters within the limits of the state from all sources of water supply belong to the public, and, except as to navigable waters, are subject to appropriation for beneficial use." This is the same as the law in North Dakota.

Texas has gone a little further: "The unappropriated waters of the ordinary flow of every running or

flowing river or natural stream, and the storm or rain waters of every river or natural stream, canyon, ravine, depression, or water shed within those portions of the State of Texas in which by reason of the insufficient rainfall, or of the irregularity of the rainfall, irrigation is beneficial for agricultural purposes, are hereby declared to be the property of the public, and may be acquired by appropriation for the uses and purposes and in the manner as hereinafter provided."

Here it will be seen that all of the waters are dedicated to only a portion of the state.

It is provided in the statutes of Utah: "The water of all streams and other sources in this state, whether flowing above or under ground, in known or defined channels, is hereby declared to be the property of the public, subject to all existing rights to the use thereof."

"The use of water for beneficial purposes, is hereby declared to be a public use."

It is sometimes said that there are two doctrines of irrigation in our country, the Colorado doctrine and the California doctrine; but it will be noticed that no two states have exactly the same fundamental law in regard to water, hence, it would be as correct to say that there are as many doctrines as there are states in the arid region.

We may very appropriately ask, what is the effect of the dedication of the waters of a state to the state or to the people? We have seen that neither an individual nor the state can own the water while it flows in its natural channel. The dedication does not confer upon the state a title or even the right to use the water. The public ownership is that of a sovereign and not of a proprietor.

What then is the distinction between the expressions, proprietor and sovereign?

A proprietor holds for himself and may do as he pleases with the property. The sovereign holds in trust

for the whole people and has only the right to regulate the use and to guard the interests of all.

This is made clear by the language of the Court in a Wyoming case:

“The obvious meaning and effect of the expression, that the water is the property of the public, are that it is the property of the people as a whole. Whatever title, therefore, is held in and to such waters resides in the sovereign as the representative of the people. The public ownership, if any distinction is material, is rather that of sovereign than proprietor. The ownership, however, is subject to a particular trust or use.”

When a state adopts in its constitution or statute the expressions providing that the waters within a state are the property of the state or of the people, it cannot in any way affect the rights of the United States in and to such waters. All the rights of the state or its people must be subject to the rights of the General Government.

The government has all the rights of a private riparian owner in the waters which flow through the large tracts of public lands and reservations which it owns. The government originally owned all, both land and water, and in parting with title to any portion cannot be held to have divested itself with more than was named in the grant. A case arose in Montana involving the right of citizens of the state to take water from a certain stream, as against the rights of the Indians on a government reservation, to appropriate the waters of the same stream, for irrigation. The Court said: “The power of the government to reserve the waters and exempt them from appropriation under the state laws is not denied, and could not be.”

Another case holds that the creation of an Indian reservation by the United States operated as a reservation of so much of the waters of the creek running through the land as might, at any time in the future, be

required and could be utilized in carrying out the purposes of the treaty with the Indians.

But a state has full power to enact what laws it sees fit to regulate and control the waters within its boundaries as far as its own internal affairs are concerned and the rights of its citizens. As against all existing rights of the General Government, a provision in the state has no effect whatever. The only reason that a constitutional provision is better than a statutory one is that the former is not so apt to be changed readily.

Many features of the law of water in the Western states are inconsistent as between states and even within the same state. It is therefore evident that the law of waters is far from settled.

When a grantee of the United States receives a title to a tract of land through or adjoining which a stream of water runs, and the waters of the stream have not yet been appropriated, his title is not subject to any possible appropriation, which might injure his riparian rights, unless the State or Territory in which the land is located has abolished the law of riparian rights. If the land granted before any appropriation has been made, is upon the public domain, within the boundaries of a State, the riparian rights of the grantee are determined and regulated entirely by the law of the State, over which Congress has no power to legislate.

It follows from the original ownership of the Government of all the waters on the public domain that it had the right to dispose of them as it saw fit, and where there is yet water flowing in the natural streams, which has not been appropriated under some authority from Congress, the General Government may reserve such waters for its own use, or for use on Indian or other reservations. But it is to be remembered that the Government cannot confer riparian right in a State where such rights have been abolished. It has been held that when the United States makes an appropriation, as under the Reclamation

Acts, it does so under the same terms as a private individual, and must follow the law of the State where the appropriation is made.

The common law rights of riparian proprietors grow entirely out of, or are connected with, ownership of the banks of a stream or other body of water. The ownership of the bed of the stream, the land on which the water runs, if not coupled with ownership of land contiguous to the stream, its banks, does not confer riparian rights. If one possesses such right he loses it by parting with title to the land along the stream if only for right of way for a road. The foundation of riparian rights is the ownership of the bank. The right does not depend upon use or non-use. The common law holds that the right of enjoying the natural and usual flow of all the waters, unless they have been diminished by a reasonable application by other riparian owners, is a natural right, and is an incident of the property in the land. A riparian owner may use the water but not in such a manner as materially to diminish its amount for other riparian owners below him on the stream. Each proprietor upon the stream has the right to insist that its waters shall flow to his land in the usual quantity, in its natural channel, and that it shall flow off his land to his neighbor below, in its accustomed place and at its accustomed level.

As this right belongs equally to all the owners abutting upon the stream, simply by reason of the location of their land, it follows that there can be no such thing as priority of right among those claiming it.

I have been thus insistent in the statement of the matter of riparian rights because of the importance that we get clearly in our minds the status of the one claiming it, and that we may not fail to catch the importance of the changes made in the old law due to the necessities arising from the practice of irrigation on a large scale.

We find ourselves then confronted with the two theories concerning the use of water for irrigation. Is the

want for water to supplement the inadequate supply from the clouds a natural want, or is it an artificial want?

The Court of Illinois has said: "In countries differently situated from ours with a hot and arid climate, water doubtless is indispensable for the cultivation of the soil, and in these countries water for irrigation would be a natural want."

In California, the Court in an early case expresses itself as follows: "It may be that, under the physical conditions existing in some portions of the State, irrigation is not, theoretically, a natural want in the sense that living creatures cannot exist without it; but its importance as a means of producing food from the soil makes it less necessary, in a scarcely appreciable degree, than the use of water by drinking it."

All of the eighteen states that were formed out of the region lying within the arid section of our country adopted the common law and with it the doctrine of riparian rights. The fundamental principle of appropriation of water for beneficial purposes has been adopted in all of these eighteen states and Territories. In some of these States it was decided by the legislatures or the courts that certain features of the common law were inapplicable to the arid conditions of certain sections of the country, and in those States the common law upon the subject of waters was directly abrogated and the Arid Region Doctrine of appropriation substituted. Seven of these States, situated in the heart of the arid region, followed the lead of Colorado in their departure from the common law.

California attempted to reconcile a rule that the water must continue to flow in its natural channel as it is accustomed by nature to flow, with a rule which requires that in order to secure a right of use the water must be diverted from its channel and applied to a beneficial use. A number of States have followed California in this paradoxical solution of the matter.

Remembering the common law rule the question

arises, when we begin to recognize the right to divert water for irrigation, to what extent may the waters of a stream be diverted and still preserve the rights of the riparian owner on the stream?

In Texas it is held, in that portion of the State coming within the arid region, that the waters of all natural streams may be diverted and used by an upper riparian owner for the irrigation of his riparian lands, to the exclusion of the use by the lower riparian owner for such purposes. The general rule of the Western American States is that a riparian owner is not privileged to divert and use all of the water of a stream regardless of the necessities of other riparian owners, unless the person using the water has acquired the right so to do by appropriation under the Arid Region Doctrine.

A valuable case to arrive at the exact reasoning of the Courts in States following the California system is *Lux vs. Haggin*, 4 Pacific Reporter 919, and 10 Pacific Reporter 674.

The use of water for irrigation, under the Western American Doctrine of riparian rights, is that the use must be reasonable with reference to the rights of all the other proprietors.

What, then, is a reasonable use? In a general way it may be said that this is to be determined from the facts of each case.

One Court states the matter in this way: "We do not believe that the common law rule of equality among riparian owners, administered liberally with respect to the circumstances of particular localities, is necessarily prohibitive of irrigation anywhere. * * * It would be impolitic to give an arbitrary or hard and fast meaning to the word 'reasonable' in this connection. The use of water for irrigation always involves some loss, and we do not think it would be wise to declare every perceptible diminution of the waters of a stream to be unreasonable. The necessity of a liberal view of what constitutes

a reasonable use of water for irrigation has been judicially recognized."

The Oregon Court holds that under the Western doctrine of the common law an owner is not a wrong doer when he uses the water of a stream for the purposes of irrigation; nor does the fact that his land lies above the level of the stream, so that it cannot be irrigated by means of ditches wholly on his own land, affect his right to the use of the water.

In the Western States which follow the common law rule of riparian rights, the question depends upon the size, character, and situation of the stream, the fall of the water, its volume and velocity, the prospective rise and fall, the season of the year, the nature of the region, the character of the soil, the amount of water required to water the land per acre, the number of the riparian proprietors, and the extent of the riparian lands on the stream that can be irrigated from it, owned by each proprietor, the use to which the water may be put by all the proprietors, the kind of crops to be irrigated, and their need of water, the means adopted for returning the water to the natural channel, and a variety of other circumstances and conditions surrounding each particular case. (*Meng vs. Coffee*, 93 N. W. Rep. 713.)

In a case in California, the Court says: "A riparian proprietor's claim to the right to use water upon lands which are valueless for irrigation purposes is of course without legal foundation."

Mr. Kinney says that there are some features of this subject upon which all the authorities agree as questions of law. One of these being that in no case can a riparian proprietor for the purposes of irrigation, as against other proprietors either above or below him on the stream, use or successfully claim all the water of a stream, unless he has a prior legal appropriation.

It follows as a conclusion from the above discussion that a riparian proprietor in the Western States which

we have been considering may use the water of the natural stream for irrigation of his riparian lands, subject to the following limitations imposed by law. All the water of a stream can be used by an upper proprietor only where the whole of the stream is absolutely necessary for strictly domestic purposes to furnish drink for man and beast. Again, an upper owner has no superior right to the use of the water merely because he is above others on the stream. Again, the water must not be used by a riparian proprietor for the irrigation of non-riparian lands. And, finally, the water must not be used by an upper proprietor in a wasteful manner, so as thereby to prevent a reasonable use of the water by those lower down. The surplus water must be returned to the natural stream so that it can be used by the owners below.

May a person owning large bodies of land with only a small frontage on a stream, claim riparian rights for all of the land?

This question has given the Courts some trouble. The weight of authority in the Western States is to the effect that land to be riparian, should lie within the drainage basin or water-shed of the stream upon which riparian rights are claimed. Hence, if a divide cuts the land in two, only that portion which lies toward the stream can claim such right. If a person owns a body of land contiguous to a stream and purchases other land adjoining this, it does not give to the latter purchase a riparian character. So if from riparian lands a portion not adjacent to the stream be sold, the part sold loses its riparian character, and if repurchased by the original owner, it does not recover such character.

Mr. Kinney, in summing up the matter of the riparian doctrine of water in the Western States makes the following very pertinent remarks: "In these very States, side by side with the common law rule, there exists another system for the use of water, based upon a prior appropriation for some beneficial use. On principle these

two systems are directly opposed to each other, and hence, necessarily, there is more or less clashing between them. In the States endeavoring to uphold both of these rules there is much more litigation than there is in the States which have abolished the rule of riparian rights, and have adopted the Arid Region Doctrine of appropriation. Had the Government in the early history of the opening of its public lands for sale adopted some equitable rule for the disposition of its water with the lands, so that each settler could approximate what right he had to the water when he made his entry, we would not have had this endless confusion of rights and litigation which we are having.

* * * The doctrines of riparian rights and of appropriation are not only clashing with each other, but often with themselves. And not only is there endless litigation upon the subject, but also text books must be written upon the subject, attempting to reconcile some of these questions, and to define what rights an individual or corporation may have under certain conditions in and to the waters of the natural streams and other sources of natural supply. All these, and many kindred and now necessary evils, have developed on account of the lack of foresight upon the part of the National Government in not taking into consideration the fact that the waters of this Western arid country were of at least equal value and importance as the land through which they flow."

OUTLINE OF LECTURE 5

Arid region doctrine. Summary by Judge Hawley.

Decision in any case rests upon the facts of that case.

It is to be remembered that the subject presents many questions new to the courts.

Arid region doctrine defined. English rules not good here.

Early conditions in California.

Mining districts, their organization and rules.

Common law of England adopted in California in 1851, thus fastening doctrine of riparian rights.

California legislature adopted the customs and regulations of the mining districts.

Other states followed in thus adopting such regulations.

This introduced the entirely new doctrine of priority of appropriation.

The miners were merely trespassers on the Government Domain.

California recognized a possessory right to water before the Government took any action.

Water first appropriated for mining; later for other uses. First action by Congress in 1866; this was merely to recognize and ratify the title claimed by the miners from possession. Person injuring another to be liable for damage.

Doubts arising as to extent of application of Act of 1866 led to Act of 1870. Note how this Act differs from that of 1866.

The avowed purpose of these two Acts.

How construed by courts. Construction by United States Court that the Act looks forward as well as backward.

It is important that you get just what this means.

Western state passed laws as to how water is to be appropriated, etc.

Act of 1877 to encourage desert land entry.

Some fundamental questions: Two theories of source of title to the use, not title to the water.

California theory that it comes by grant from the United States Government.

Colorado theory that State owns and controls the water and appropriator gets his title from the State. These two theories discussed. Sovereignty defined.

LECTURE 5

I take up now the discussion of the Arid Region Doctrine of appropriation, and shall endeavor to show why it has been adopted in our country instead of the riparian doctrine.

Judge Hawley, a pioneer in irrigation in the Western States, speaking in several cases from the United States District bench has explained the matter in the following words: "We consider the law to be well settled that the right to water flowing in the public streams may be acquired by an actual appropriation of the water for a beneficial use; that, if it is used for irrigation, the appropriator is only entitled to the amount of water that is necessary to irrigate his land by making a reasonable use of the water; that the object had in view at the time of the appropriation and diversion of the water is to be considered in connection with the extent and right of appropriation, that if the capacity of the flume, ditch, canal, or aqueduct, by means of which the water is conducted, is of greater capacity than is necessary to irrigate the lands of the appropriator, he will be restricted to the quantity of water needed for the purposes of irrigation, for watering his stock, and for domestic use; that the same rule applies to an appropriation made for any other use or purpose; that no person can, by virtue of his appropriation, acquire a right to any more water than is necessary for the purpose of his appropriation; that if the water is used for the purpose of irrigating lands owned by the appropriator, the right is not confined to the amount of water used at the time the appropriation is made. He would be entitled, not only to his needs and necessities at that time, but to such other and further amount of water, within the capacity of his ditch, as

would be required for the future improvement and extended cultivation of his land, if the right is otherwise kept; that the intention of the appropriator, his object and purpose in making the appropriation, his acts and conduct in regard thereto, the quantity and character of land owned by him, his necessities, ability, and surroundings, must be considered by the courts, in connection with the extent of his actual appropriation and use, in determining and defining his rights; that the mere act of commencing the construction of a ditch with the avowed intention of appropriating a given quantity of water from a stream gives no right to the water unless this purpose and intention are carried out by the reasonable, diligent, and effectual prosecution of the work to the final completion of the ditch and diversion of the water to some beneficial use; that the rights acquired by the appropriator must be exercised with reference to the general condition of the country and the necessities of the community, and measured in its extent by the actual needs of the particular purpose for which the appropriation is made, and not for the purpose of obtaining a monopoly of the water, so as to prevent its use for a beneficial purpose by other people; that the diversion of the water ripens into a valid appropriation only when it is utilized by the appropriator for a beneficial use; that the surplus of the waste water of a stream may be appropriated, subject to the rights of prior appropriators, and such an appropriator is entitled to use all such waters; that in controversies between prior and subsequent appropriators of water, the question generally is whether the use and enjoyment of the water for the purpose to which the water is applied by the prior appropriator have been in any manner impaired by the acts of the subsequent appropriator."

I have indulged in this rather lengthy quotation, because it states clearly the law upon many points that are constantly arising over conflicting claims for water from the same stream. But we are to remember that a decision

of a Court is based upon the facts of the case before the Court, and that we are not justified in making a too general application of the doctrine announced. We shall have occasion to see that in our own State some of the conclusions of the learned judge above cited have not been accepted without modification.

We are to keep in mind in tracing the development of the law of waters in this Western country that many questions arose which were entirely new to English jurisprudence. There was no caption of the settled law to which these questions could be referred for precedent. Many questions arose which had never before called for adjudication in English courts. It was early seen that recourse must be had to the fundamental principles of law to determine the exact rule of right between parties. The result for many years was that the Courts, in attempting to work out a system of exact justice, have been ahead of the legislative bodies, and that there grew up a large amount of court made law; the legislatures, very often following the conclusions of the Court, have crystalized into a general rule the decision reached by the Court in a special case.

If called upon for a definition of the Arid Region Doctrine of appropriation, we might state it in some such way as the following: It is a collection of principles or rules of law which have taken their rise in the Western States of America, by which the use of the waters of natural streams is governed, by appropriating such waters for beneficial purposes, arising from the necessities of the case. Such use calling for the withdrawal of the waters from their natural channel and use upon lands not adjacent to the stream.

In England and the Eastern States of our country, the problem has been how to get the water off from the land, while in the West it is how to get it to and upon the land.

Without entering upon an elaborate examination of

the reason for abandoning the riparian doctrine, we may say that the entirely new conditions by which settlers were confronted necessitated the adoption of new rules. The common law of England wherever it has been adopted in this country has always been adopted with the qualification that the adoption extends only so far as the old law is adapted to the conditions of this country; new conditions require new rules.

When, in 1848, the discovery of gold in California led to a large emigration into that State, the necessity for water to be brought from considerable distances to wash the dirt of the placer grounds was soon recognized and as the water of the only available stream was frequently inadequate for the demands of all who wished to use it for washing the placer dirt the good sense of the miners worked out a plan by which the water might be equitably divided and made to serve the greatest possible number. Living in a country to which the established law of Eastern States was still unknown; recognizing the necessity of some uniform rule of conduct they organized Mining Districts, elected officers, and set up a tentative form of government. Among other things they formulated the rule of appropriation of water with the right to lead it away from its native course and to use it for mining purposes. The first comer on the stream was recognized as having the first or prior right to the use of the water of the stream. His right, however, was to be measured by his needs. He was not to waste the water, and by continued failure to use it beneficially he might lose his right. A standard of measurement was adopted, such standard being what was designated as a miner's inch of water. A miner's inch was defined as the quantity of water which would flow through an orifice one inch square, taken from the surface of the stream. From this simple beginning has grown the elaborate and complex system of appropriation and division of water now in use throughout the West.

In 1850, California was admitted into the Union. In 1851, the legislature of the State passed an act adopting the common law as the rule of decision for the Courts of the State. Whether inadvertantly or not, they did in fact fasten upon the State the doctrine of riparian rights. Many of the rules and regulations of the miners had become firmly established, and many vested rights had attached, and in order not to disturb these rights the Act of 1851 provided that "in actions respecting mining claims proof shall be admitted of the customs, usages or regulations established, or in force, at the bar or diggings embracing such claims, and such customs, usages, and regulations when not in conflict with the constitution and laws of this state, shall govern the decision of the action."

As similar conditions to those in California existed in nearly all of the Western states, a similar adoption or ratification of the rules and regulations of the miners was effected in each of them.

This law, first adopted by California, introduced an entirely new principle governing the rights to water in the United States, the law of priority of appropriation, or the doctrine that he who is first in time is first in right. You will observe also that it is in direct conflict with the doctrine of riparian rights.

The courts of California struggled hard to maintain the riparian doctrine, but our time will not permit of the review of the cases. It is interesting to notice that the miners in California had no right or title to either the land or the water which they were claiming to use. The United States government had not as yet made any provision by which title could be secured to the public lands in that state, much less to the waters flowing through them. The miners were in both instances mere trespassers upon the public domain; but a sense of fairness and justice of our people, expressed through Congress, led to the ratification and confirmation of these merely posses-

sory titles, whereby an absolute title vested in the possessors.

Before Congress had made any provision authorizing or recognizing the appropriations of water, it had become the settled doctrine in California that at least a good possessory title could be acquired to water by the prior appropriation of it from the streams and lakes of the state, and their application to a beneficial use, even when both the land and water was the property of the United States. One by one, as the necessity arose for decision, the other Western states followed the lead of California, though modifying, it is true, her rules.

From the nature of things mining was the first use of water from the public streams that was recognized as a beneficial use, but gradually the use for agriculture, for manufacture and for domestic purposes came to be so recognized, until now, as said by Justice Field in a California case: "It is held generally throughout the Pacific states and territories that the right of water by prior appropriation for any beneficial purpose is entitled to protection. Water is diverted to propel machinery in flour mills and sawmills, and to irrigate lands for cultivation, as well as to enable miners to work their mining claims; and in all such cases the right of the first appropriator, exercised within reasonable limits, is respected and enforced."

The first formal action by Congress took the form of an Act which was approved on the 26th day of July, 1866. This Act ratified all possessory rights, both in lands and waters, which were recognized and acknowledged by the local customs, laws, and decisions of the courts, and which had vested and accrued prior to the passage of the Act.

The ninth section of this Act reads as follows: "Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes, have vested and accrued, and the same

are recognized and acknowledged by the local customs, laws, and decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same; and the right of way for the construction of ditches and canals for the purposes herein specified is acknowledged and confirmed; but whenever any person, in the construction of any ditch or canal, injures or damages the possession of any settler on the public domain, the party committing such injury shall be liable to the party injured."

After the passage of this Act, all subsequent patentees acquiring lands from the United States take those lands subject to all vested and accrued rights in and to the waters of the public domain appropriated by other parties prior to its passage. But this could only be inferred as the legal construction of the effects of the Act of 1866. In 1870, Congress passed an Act supplementing the Act of 1866, providing: "All patents granted, or pre-emptions or homesteads allowed, shall be subject to any vested and accrued water rights, or rights to ditches or reservoirs used in connection with such water rights, as may have been acquired under or recognized by the preceding section."

You will notice that it was the avowed purpose of these two Acts of Congress merely to recognize and confirm those rights which had vested and accrued prior to their passage, but the courts were not slow to construe them as applying to future appropriations, which were prior in time and were also recognized and acknowledged by the local customs, laws, and decisions of the courts. That is to say, the courts construed the Act of 1866 to be prospective in its operation, and to apply to all appropriations in the future.

As early as 1872, the United States Court is found saying: "The Act of Congress of July 26, 1866, is prospective in its operation."

Mr. Kinney remarks in passing that "This construc-

tion of the courts probably did more toward the material building up of this Western country than any other construction of any law by any court."

I want you to catch the significance of this. The courts in substance declare that Congress not only recognized certain existing rights, but that it also recognized the system under which the right to these claims was acquired, and declared that system to be a valid method under which existing rights to water, and rights of way for the purpose of conducting the water to the place of use, had been acquired, and under which others might be acquired in the future. But in order to establish any rights under the statute the claimant must prove his priority of possession.

Acting under the view expressed by Congress in the two Acts above cited, in all of the Western states and territories where water was being appropriated and used under the Arid Region Doctrine, laws were speedily enacted by the legislatures providing how the water might be appropriated, for what purposes it might be used, what changes might be made in the appropriation or use, and how these rights might be maintained or lost, and other apparently necessary provisions.

In 1877, Congress, wishing to encourage the development of lands lying away from the streams, passed what is known as the Desert Land Act. This Act provides for the filing of a declaration by an applicant for the land, stating that he intends to reclaim the land by conducting water to it within three years thereafter; it then goes on to say: "That the right to the use of the water by the person so conducting the same on or to any tract of desert land shall depend upon bona fide prior appropriation; and that such right shall not exceed the amount of water actually appropriated, and necessarily used for the purpose of irrigation and reclamation." The Act says, further, "And all surplus water over and above such actual appropriation and use, together with the water of all

lakes, rivers, and other sources of water supply upon the public lands and not navigable, shall remain and be held free for the appropriation and use of the public for irrigation, mining, and manufacturing purposes subject to existing rights."

There are other and later acts of Congress which further confirm and emphasize the right to appropriate water on the public domain, a discussion of which will come more properly at a later stage of our course.

We have reached a point in our discussion where we may profitably take up in their order the questions that have arisen concerning the use of water, the conflicting claims of appropriators, and the means of settlement of disputes which have been adopted in the various states.

There are some fundamental questions which may properly claim our attention at this point.

We have seen that there are two doctrines concerning the right to use water from the public streams, the Riparian, and the Arid Region Doctrine. There are two theories also as to the source of title, one of which is known as the California and the other as the Colorado theory.

You should notice especially that in all of this discussion the question is as to the title to the use, not to the water. The California theory of title is that the right acquired by appropriation on the public domain is founded in a grant from the United States government as the original sole owner of the land and water.

Under the Colorado theory, it is claimed that the ownership and control of all the waters of the natural streams within the boundaries of a state were surrendered by the General Government to that state upon its admission to the Union; that this included even the title to the use of the water. And, therefore, the appropriator, instead of acquiring his title to the use of the waters from the United States, as the owner thereof, acquires it from the state in which the appropriation is made. And, as

large property rights have grown up in all the Western states, based entirely upon the Arid Region Doctrine of appropriation, it is necessary to determine which of these two theories is the correct one.

We must be careful to distinguish between sovereignty and ownership. Sovereignty may be defined as being the right to exercise power, dominion or sway over a thing. Ownership is the possession of all the elements of title. If I hire to you a horse which I own, you have, while it is in your charge, the right to direct its use and management, the sovereignty of the animal.

The practical working of the system of appropriation is the same whichever of the two theories of origin of title may be considered to be correct. Under the California theory, a water right can be acquired only by a grant from the owner of the land. And, therefore, the United States being the sole owner of the lands and waters of the public domain, the right acquired by the appropriation and use of water flowing over the public land is founded in a grant from the United States, and that such a grant was at first presumed from the silent acquiescence of the government, and now rests upon the Act of Congress of 1866. Under this theory the title comes from the owner of the land, and that the appropriator, not acquiring his title from the state, but from the United States as owner of both the land and the water, the legislative power of the state is limited to the enactment of such laws as come within the police powers of the states regulating water, and the procedure in the state courts.

Under the California theory, the government still retains its riparian rights to all of the waters flowing over its lands to which a possessory title has not vested and accrued in accordance with the Acts of 1866 and 1870. And as the government disposes of its lands to individuals, these riparian rights go to the individuals getting the land, subject to the rights of those previously acquiring the use of the water.

OUTLINE OF LECTURE 6

View of ownership of the U. S. under Colorado Doctrine
—carefully observe the reasoning.

Right to appropriate is earlier than any law.

Questions concerning appropriation—

What water may be appropriated—in general all
public waters—most common appropriation is
from natural streams.

When streams flowing over private lands may be appropriated.

Waters of springs—prior right of owner of land, and of
prior appropriator of the stream into which spring
flows.

Limitation of right to appropriate from tributary streams.

Order of rights in stream and its tributaries.

Water from lakes and ponds.

Water from freshets—flood and storm water.

Seepage water defined. What is surplus and excess water?

Waste water defined. May be appropriated—but.

Appropriation from navigable streams.

What are interstate waters. Current of stream not subject to appropriation.

Reservation of water by government.

Waters in forest reserves, Act of 1897.

Procedure to be followed in appropriation on forest reservations.

On what lands diversion may be made. No question as to public lands.

If on private lands, right of way must be secured. How may it be secured?

Who may appropriate? What is meant by tenants in common?

Distinguish between common ownership in a ditch and in an appropriation.

Do not need to own land to have right to take water.
What is required?

For what purposes appropriation may be made.

Learn the various uses of water. May appropriate to sell rights, and for future use, but not for speculation or monopoly.

How may water be appropriated. Governed by law in different states. Definition of appropriation.

All definitions should be carefully learned.

LECTURE 6

The Colorado theory asserts the state ownership of all the waters within the boundaries of the state. The United States is not recognized as the owner or the grantor to the appropriator. The riparian rights of the government in the streams flowing over the public domain are not recognized, and all such rights are abrogated or abolished, either by statute or by court decision. Those contending for the Colorado theory reason that the waters of the streams flowing on the public domain were never claimed by the United States, but were left or surrendered to the respective states and territories in which they flowed, both as to their ownership and as to the jurisdiction and control. That those states and territories had it within their power to abolish all of the common law theories of riparian rights, and that imperative necessity, unknown in England, compels the recognition of another doctrine. Therefore the state having all this power, and having the ownership of the use of the water, had the right to declare, as it did, that the water was the property of the state, the appropriator acquires his right to the use of the water for beneficial purposes from the state and not from the United States.

The Colorado theory has been adopted by Arizona, Idaho, New Mexico, Nevada, Utah, Wyoming.

In 1872, the Territorial Supreme Court of Colorado in the case of Yunker vs. Nichols, took the view that the right does not arise from grant, but from operation of law. Ten years later the Supreme Court of the State of Colorado, in Coffin vs. Left Hand Ditch Co., held that the right of appropriation existed prior to legislation on the subject of irrigation.

In the former of these two cases the Court says:

"The element of grant is not recognized under the Colorado theory," and Judge Hallett, from the Bench of the United States District Court, in much later cases, has taken the same view.

We turn now from this question, which has little more than an academical interest to us, to the questions, what waters may be appropriated, by whom appropriated, how appropriation is effected, and the nature and extent of the rights acquired by an appropriation, either as between appropriators, or between appropriators and those claiming the right to the use of the water as riparian proprietors.

The first question, what waters may be appropriated, may be answered briefly by saying that in general, all waters upon the public lands not previously appropriated are subject to appropriation. Further discussion will be necessary to point out the limitations of this rather broad statement.

The most common case of appropriation is from natural surface water courses, including all rivers and streams, and these are open to appropriation. It is held in numerous Court decisions that waters of streams flowing partly upon public and partly upon private lands, may be appropriated. So, too, the waters of streams arising and flowing throughout their entire course upon private lands may be appropriated to the extent of the water remaining unappropriated under the law of the state in which the stream flows. The Court of Idaho has used this language: "By the adoption of our state constitution all of the unappropriated waters at that time were declared to be public waters, and it matters not through or over whose land they flow." The same has been held by the Courts of Colorado. In states maintaining the riparian doctrine, a stream flowing entirely over private lands is not subject to appropriation. Waters flowing over lands owned by states may be appropriated. In a case in Oregon the Court held "That a prior appropri-

ator of waters from a natural stream flowing through state lands has such a vested right to the use of the water and to the ditch, in which it flows, the ditch being also on state lands, as will defeat the claim of one who, with notice of such diversion and existence of the ditch, obtains from the state a deed to the premises, without any reservation of any water right."

The waters of springs are subject to appropriation, and ditches constructed for the purpose of utilizing the spring waters of the state are governed by the same laws as ditches constructed for taking running water from streams. But this right to take the waters of springs is subject to the right of one who has appropriated the water of a stream into which the spring discharges if the water of the spring is needed to make out the prior appropriation from the stream, and this is true whether the water of the spring reaches the stream through an over-ground channel or by seepage or percolation.

After land has passed from the public domain and has become private land, none but the owner of such land has the right to the use of the water arising on such land unless the owner allows the water to flow off and below his land, in which case it is open for appropriation by others.

The waters of streams that are tributary to other streams may be appropriated if by such appropriation the prior rights secured by earlier appropriation are not robbed. The Courts have almost uniformly held that a stream with its tributaries is to be considered a unit for purposes of appropriation and water may not be taken from the tributary if such taking will have the effect to make it impossible for the main stream to furnish the appropriations already made therefrom.

Suppose an appropriator in this situation: There are appropriators prior to him below him on the stream, and appropriators later than he on the tributaries of the stream above him. If the appropriators on the tributaries

are allowed to take the water, our supposed person might be compelled to allow the water of the stream to descend to the earlier appropriators below him, and thus he would be defeated of his rights by an appropriator to whom he is prior. In such a case he is entitled to the flow of the tributaries to satisfy those below in order to save his own rights.

Water may be appropriated from lakes and ponds if they are not so connected with a running stream as to form a part of a system which might need their waters to supply earlier appropriations from the stream.

One may make a valid appropriation from canyons, gorges and ravines even though throughout the greater part of the year there is no running stream therein; there being water only in times of freshets or heavy rainfalls.

Flood or storm waters may be appropriated for beneficial use if care is taken not to interfere with prior rights that might depend upon the same waters for their supply.

Seepage water, in the Western acceptance of the term, is water that has seeped from ditches or has escaped from irrigated lands and appears upon lands lying lower down. If these seepage waters have not established a regular channel by which they regularly find their way back to the stream and thus become liable to supply appropriators on the stream, they may be appropriated and put to beneficial use.

We shall see that no person can secure the right to use more than he has a use for; therefore, if a person having actual use for fifty cubic feet of water pretends to appropriate seventy-five cubic feet, the additional twenty-five feet is called surplus or excess water and may be appropriated by another person regardless of the earlier claim.

There are some interesting questions connected with the appropriation of waste waters. Such waters may be defined as water which escapes from the irrigation works of any appropriator, whether from the gate or through

the dam, the ditch or other works, also the water which after having been run upon land flows off below. Such water is subject to appropriation. But such an appropriator does not acquire a right to insist that the water shall be continually wasted for his benefit. After he has put in his works to catch the waste water, the one from whom the waste has come may take steps to stop the waste and the other party can not complain.

This is well shown by a case decided by the Court of Colorado. A woman, finding water running to waste, constructed a ditch and appropriated the waste water. Later the party who had been allowing the waste, took steps to prevent it. The woman sued to compel him to allow the water to continue to come to her ditch. In reviewing the case brought before it, the Court says: "Plaintiff's rights were limited and only attached to the water from defendant's ditch, whatever that happened to be, after defendants had supplied their own wants and necessities. This does not vest her with any control over the ditches or laterals of defendants, or the water flowing therein, nor does it obligate defendants to continue or maintain conditions so as to supply her appropriation of waste water at any time or in any quantity."

The waters of navigable streams may be appropriated; the only necessity being that care be taken not to so far deplete their supply as to interfere with their navigability.

In a case arising over the use of the waters of the Rio Grande River, the Supreme Court of the United States held that, "An injunction would be granted not only against the diversion of the water from the upper parts of a navigable river of the United States, but also against the diversion of the water from the tributaries of a river where it was shown that the navigability of the main stream was impaired."

What are known as interstate waters are waters which cross the boundary of one state and flow into an-

other state. Such waters may be appropriated in either state. Questions arising between citizens of different states as to rights to the use of water from interstate streams are to be tried in the United States courts, and in the few cases of this nature that have arisen it would seem to be the view of these Courts that such questions are to be decided on the principle that prior appropriation on the stream gives the better right, regardless of state lines.

The current of a stream cannot be appropriated; that is to say, a person may not erect structures such as a water wheel in a stream and by virtue of having made an appropriation of a certain amount of water claim the right to have enough water left to run in the stream to run his wheel. He may appropriate water, but he cannot acquire a right to the current so as to prevent others using the water remaining after the amount of his appropriation.

We have seen that the government may reserve the use of sufficient water in a stream to supply any of its own needs. In dealing with the Indians the government has made certain reservations of land for their use and to induce them to adopt a settled form of life, it undertakes to furnish these reservations, where necessary, with water for irrigation. To the extent that the waters of public streams are needed to supply such reservations, the government is recognized as having a prior, paramount right to such waters.

By Act of Congress of June 4, 1897, "All waters upon National Forest Reservations may be used for domestic, mining, milling, or irrigation purposes, under the laws of the state wherein such forest reservations are situated, or under the laws of the United States and the rules and regulations established thereunder."

The last clause just cited reserves to the United States rights to the use of waters flowing over forest reserves or National Forests, but the National Government

has never taken advantage of this reservation and has left the appropriation of all waters on such reserves to the laws of the state in which they lie.

In applying their laws to the appropriation of water flowing over forest reserves, the various states require in addition to compliance with the state law, that the appropriator secure a license from the government according to its rules and regulations.

Our next question is, on what lands diversion may be made. There has been no question that diversion may be made where the place of diversion is on public lands of the United States or upon lands belonging to the state, but the question has been before the Courts whether one may locate his point of diversion on private land. One California case holds that a valid appropriation can not be made where the point of diversion is upon private lands but nearly all the Courts in the Western states have decided that it makes no difference who the owner of the land may be, whether public or private, provided the right to enter upon private land be secured either by purchase or condemnation. The Supreme Court of the United States holds that an appropriation might be so made and that the right of way to the stream through a ditch might be acquired by eminent domain. An early case in Colorado held that private lands are held subordinate to the dominant right of others, who must of necessity pass over them to obtain a supply of water to irrigate their lands; even though no grant had been obtained from the owner of the land, and against his will, and without condemnation. But this rule has been modified and today the right may be exercised, but compensation must be made to the owner of the land.

Who has the right to appropriate water? We may say generally that any person may do so who is prior in time and who will apply the water to a beneficial use. The appropriation may be made by all land owners, all citizens of the United States, by Indians, married women,

minors, by municipal, or business corporations, by mutual associations, by irrigation districts, or by the United States.

Tenants in common are persons who own a property jointly by different titles but have a common or joint possession. For example: A, B and C may together own a ditch and possession may be common among them. A may have been one of the original builders, C have purchased his interest from someone else and B have received his interest as a gift; here the origin of title is in no two instances the same but the possession is common.

Several persons may thus possess in common a water appropriation, or they may be possessors in common of a ditch; but we are not to confuse the two. Ownership in common of a ditch is not necessarily accompanied by common ownership of the appropriation. Several persons owning several and distinct appropriations may unite in the ownership of a ditch in which each will carry his several supply of water.

To have the right to appropriate water one does not have to be the owner of any land; all that is required is that he be in position to make a beneficial use of it, and if that use is for irrigation it may be upon land to which he has but a temporary, rental title. He may make an appropriation for the purpose of irrigating land which he had rented from another and when his rental period has terminated he may take his appropriation to other lands. A mere squatter upon the public domain may make a valid appropriation for the purpose of irrigating lands so occupied. The question of his right of possession to the land can be raised by no one but the government, for his right is as good as any one's until the government has given title. As long, therefore, as the squatter is in possession of government land, he can maintain the right to water to irrigate it, and if ousted may take his water to other lands or sell it.

For what purpose may water be appropriated? Gen-

erally, it may be said that water may be taken from the public streams or other sources of supply for any beneficial purpose. While some statutes and some decisions have specified certain uses for which water may be appropriated, it has been held frequently that such a list of uses is not intended to be exclusive of others. In giving a list here, therefore, I am not to be understood to mean that such list is exhaustive of the uses for which water may be claimed.

The right to use for domestic purposes, for mining, irrigation, for power, for the developing of light or heat or to run machines, has been recognized from the beginning, and as the West has developed other as important uses have come to be admitted to the right of appropriation. There is no question of the right of municipalities to appropriate water for the watering of lawns, the sprinkling of streets and the flushing of sewers as well as for furnishing its inhabitants with water for drinking and other household purposes. A case arose in Colorado in which a party claimed the right to the use of water to beautify a mountain resort, as against others who were junior to him on the stream, who wished to take the water out of the stream above him for power purposes. The Court said in this case: "Rest and recreation is a beneficial use and for that purpose water is used to make beautiful lawns, shady avenues, attractive homes, and public parks with fountains, lakelets and streams, and artificial scenic beauty. Cities condemn water for these purposes. * * * * The law inside of the city is not different from the law outside of the city. * * * * We say that the creation of a summer resort is a beneficial use."

Water may be appropriated for use by railroads for supplying its engines, furnishing fresh water for its cars, washing cars and for other necessary uses connected with its business. The making of ice or the propagation of fish will either furnish the grounds for a valid appropriation of water. So, also, an appropriation may be made

by a person or company who have themselves no chance to make a direct beneficial use of the water, but whose object is to develop the water for the sale of rights of use to others, but the object for which the water is intended ultimately to be used must be in view, and definitely stated in the papers by which the appropriation is commenced, and the work must be pushed forward with reasonable diligence, and the water must within a reasonable time be actually applied to a beneficial use.

Water may be appropriated to be applied to a beneficial use at some future time and in the meantime to be stored in reservoirs.

An appropriation cannot, however, be made for a mere speculation or for the purpose of securing a monopoly. The waters of the state are held in trust for all the people of the state and to permit any man or set of men to possess themselves of a large portion of these waters in order to be able at some later day to demand a high price for it from the very people for whom it was originally reserved would be far from a just or equitable policy of the state.

How may water be appropriated? In nearly all of the Western states there has been adopted a system of laws governing more or less completely the whole subject of appropriation. This collection of laws is often spoken of as the irrigation code of the state. Since the adoption of such codes, the course to be pursued in securing an appropriation of water is clearly marked out by statute. But prior to the adoption of such laws, before, indeed, it had become apparent from experience what the course to be pursued should be, there had been many claimants of water and different methods had been adopted to establish the claims or to preserve evidence of actual user.

It will be convenient in starting on this phase of our subject to have a definition of appropriation by which we may try the validity of what is said in the discussion

of the subject. Many attempts have been made by the Courts and by legislatures to formulate such a definition. The definition is apt to be too broad or too narrow. It is made to include too little or too much. I have adopted the definition given by Mr. Kinney: "The appropriation of water consists in the taking or diversion of it from some natural stream or other source of water supply, in accordance with law, with intent to apply it to some beneficial use or purpose, and consummated, within a reasonable time, by the actual application of all of the water to the use designed, or to some other useful purpose."

OUTLINE OF LECTURE 7

Features of last definition to be observed:

The taking and diverting. There must be intent to apply to beneficial use; but this is not enough; it must be consummated with diligence.

Use of natural features allowed.

When are works complete? Necessity of diligence.

The particular method not important.

Actual use of all of the appropriation.

What is meant by diligence.

Definition of diligence. In each case depends upon the facts of that particular case.

Chance of others to get rights ahead if first comer is not diligent.

Time limit fixed in some states—effect.

Lack of ability no excuse.

Doctrine of relation. Two things necessary to apply this doctrine.

Definition of water rights.

Incorporeal hereditament.

Meaning of expression “water right is exclusive.”

The right is only possessory, and, further, it is conditional.

Ditch and water right are separate properties—but each is property.

As a property right the right to use water is real estate.

What is sold by the conveyance of a water right?

What is meant by the expression "priority of right"?

How date of priority is fixed.

The meaning of senior and junior in this connection.

Consumptive and non-consumptive use.

Right to take is limited to ability to use.

Appropriation for different periods.

LECTURE 7

In the definition given in the last lecture for the word appropriation there are several features requiring our attention: 1. The appropriation consists in the taking and diversion from the source of supply. 2. It must be done according to law, that is in the manner specified by the legislature. 3. It must be taken with the intent to apply it to some beneficial use or purpose. 4. The appropriation must be consummated, the mere intention is not enough. 5. It must be consummated within a reasonable time. 6. Finally, this consummation must be by the application of all of the water appropriated to the use designed, or to some other useful purpose.

These six considerations will require detailed amplification to determine how each is understood in the law and in practical use.

1 and 2 may be combined in study. To constitute a valid appropriation, there must be a taking of the water from some natural source of supply, in accordance with law. There is needed more than a mere determination to take the water, it must be actually withdrawn from the stream. If the law requires that a notice be posted at the point of the stream from which the appropriator intends to withdraw the water, the appropriation will not be recognized so as to protect his priority if the posting of the notice is omitted. If any other act is required to be done, its omission will leave the appropriator without protection against other claimants whose priority might conflict with his own.

There must be an intent to apply to some beneficial use or purpose. The policy of all of the states in the arid region is to allow all of the public waters to be put to some beneficial use, and unless there is an intent to

actually use the water for some beneficial purpose no amount of labor or diligence will support an attempted appropriation. To give foundation to the claim of such an intent the appropriator must proceed with diligence to construct the proper works for the taking of the water from the stream. The works must be of a nature to effect the purpose of withdrawing the water from a stream differing, of course, with each particular case. In some instances, it may be necessary to construct expensive dams and headgates; in others merely a wing dam; in some merely a ditch from the stream with no other works may suffice. An appropriator is permitted to make use of all of the natural advantages of the topography of the country, utilizing a natural high bank on the river, a natural gully for his water way, or a convenient bar in the river to deflect the water towards his headgate. The works will be considered complete to the satisfaction of all legal requirements when they are fully constructed according to the plan adopted, and ready to divert, hold and carry all of the water sought to be appropriated to the place of use. In California, the statute requires that one more step be taken and the water actually taken from the stream into the new works before such works can be said to be complete within the meaning of law.

We have seen that there can be no such thing as ownership of the water; that all that can be acquired is a possessory title to the right to use the water. As the title rests in possession, it is evident that an important element in the perfecting of an appropriation is to get possession of the water away from its natural location, and that, therefore, it must be diverted from this natural location into the works of the appropriator. Just how he does this is not so important as the fact of its being really done. There is, of course, the qualification to this last statement, that the manner of taking must be such as not to infringe upon the rights of others. A man will not be allowed to adopt such a method as to put

himself in the way of the enjoyment of the remaining waters of the stream by others. An appropriator has no absolute right to his original method of diversion even though such method may be the most convenient and economical for him, if others are not left free to enter and take from the stream.

There must be an actual use of the water appropriated. The diverting works may be fully constructed; the water may be diverted from the stream and carried to a distance, still until it has been actually put to some beneficial use there is no appropriation which will establish a priority over others taking from the same stream. There are many decisions from the Courts of every Western state emphasizing this fact. And it is important that all of the water appropriated be put to such use, for the appropriation is valid only for such part of the water appropriated as is put to use. The language of the Supreme Court of Colorado is explicit, and will serve to illustrate the position taken by the Courts of other states.

"The Court holds that they must not only take the water out of the stream, but must prove the regular use of it for irrigation. From the first this Court recognized and emphasized the idea that priority can only be legally acquired by the application of the water to some beneficial use. Hence there must be not only a diversion of the water from the natural stream, but the actual application of it to the soil to constitute a constitutional appropriation recognized for irrigation."

I have said that the prosecution of the work must be pushed with reasonable diligence. The law does not require unusual or extraordinary exertions in order to hold an appropriation. No race with another appropriator is necessary in order to complete the works and be the first to divert the water. If the work is prosecuted with due diligence, the rights of the appropriator will date from the time he took the first step to make known his intention to appropriate the water. He may have filed upon

the water with the intent to apply it to agricultural or other use and in the end actually put it to some other use; this will not affect his right, all that is required is that he put it to some use that is recognized as beneficial. In requiring the use of due diligence, all that the law asks is that an appropriator after giving such notice as is required by the statute of the state, complete his dam, ditch, and canal, and all of the other works necessary to complete his diversion and to carry the water to the place where it is intended to be used, begin his work in good faith, and continue the work upon the proposition in good faith to completion with all due diligence.

As a definition of diligence as the word is here used, I take the language of the Nevada Court: "It is the doing of an act or series of acts with all possible expedition, with no delay except such as may be incident to the work itself."

The answer of the question in any particular case whether due diligence has been used must be gathered from the facts of the particular case. One project may be able to show the exercise of diligence where it has taken several years to complete the enterprise, while another may not have been diligent in the use of as many months. This question of diligence is not of great importance where there are no intervening claimants. If a person establishes a date when he made the initial step towards securing an appropriation, he may go on without the exercise of diligence and when he has applied the water to a beneficial use his right to take the water will be recognized, but if while he is dallying with his work some other appropriator comes upon the same source of supply and commences to acquire an appropriation, and pushes his work diligently to completion, and actually applies the water to a beneficial use before it is done by the earlier comer, the appropriation of the later comer will be prior to that of the first comer, who will take his water from what is left after supplying the later comer,

and this may mean a great shortage to the earlier comer.

In some states the statute states a time limit within which work must be completed after commencement. When this is true the statute controls and the work must be completed within the time given.

A person's illness or his lack of funds to finish his undertaking will not excuse a lack of diligence.

The law indulges in a fiction known as the doctrine of relation by which that which is done at some time is considered as having been done at an earlier time. Fictions in the law are never adopted to do injustice, but are always intended to further justice. If a person files upon a piece of government land and for several years complies with the requirements of the law, he finally gets title and by the doctrine of relation he is considered as having secured his title at the time of first settlement on the land. So when one gives legal notice of his intention to appropriate water from a public stream and proceeds to the end and makes application of the water to some beneficial use, by the doctrine of relation, his title relates back to the time of the first act in the chain of actions by which the appropriation is secured. This is a very beneficial provision for it protects the honest appropriator against the acts of others between the time of the inception to the completion of his claim. It secures to him the priority as of the date of his first act, and makes it unnecessary for him to run a race with others who by the possession of greater means, might actually come later upon the stream than he, and yet secure a priority of him. The Colorado Court has said: "Although the appropriation is not deemed complete until the actual diversion or use of the water, still if such work be prosecuted with reasonable diligence, the right relates back to the time when the first step was taken." Two things are necessary to permit of the application of this doctrine; there must be priority in the inception of the right and reasonable diligence in the prosecution of it to

completion. It may easily happen, and frequently does happen, that of two appropriators, the later comer, because of the lack of diligence on the part of the earlier, will secure the prior right to the use of the water.

A water right has been defined as being "the exclusive, independent property right to the use of water appropriated according to law from any natural stream, based upon possession and the right continued only so long as the water is actually applied to some beneficial use or purpose; it is an incorporeal hereditament, as far as it includes the right to have the water flow over the lands of others down to the head of the appropriator's ditch; but the water is a corporeal hereditament after it has once been taken into the ditch or reservoir of the appropriator and is in his actual possession for the purpose of application to his uses."

The right is exclusive, that is, he can not be made to share it with another. As the California Court has said: "He has the sole and exclusive right to use the water for the purposes for which it was appropriated." In the early day a water right was considered and was merely a right to possession, and still today one gets but a possessory right to it. Further, it is but a conditional possessory right for the continuation of the right is conditioned upon the continuing of the use. With the failure to comply with the condition of use for a certain time, the right terminates, and it is either considered to be abandoned, or forfeited under a statute providing for such forfeiture. Hence the definition says there must be continuous use; but as long as the first appropriator holds possession of the right by the use of the water his possessory title is good, as against all later comers. The right is an independent one, that is it does not depend upon the ownership of a ditch or of land, or any other thing. A Western Court says: "Ownership of a ditch and the water right for the waters to flow through the ditch, may, and often does, exist in different parties. The

existence of the one right does not necessarily imply the existence of the other in the same party." A ditch may be sold without selling the water right, and the water right may be sold without the sale of the ditch. A ditch through which a water right has been used may be abandoned and the right enjoyed through another ditch and for a different use than that to which it has been previously put.

A water right is property. It is protected by law as property, and is subject to all of the usual incidents of property. It may be taxed, levied upon and sold to satisfy a judgment, and may pass by inheritance. A perfected water right is a vested property, and its value can be computed in terms of dollars and cents. It cannot be taken or damaged for public or private use, except upon due process of law and upon just compensation.

Being a property right, we may ask to what class of property does it belong? Keeping clearly in mind the distinction between the water and the water right, the right to use, it is apparent that the right lacks some of the characteristics of personal property, hence it is generally conceded that it is real property. As already said, a water right is inheritable property, and, as it is real property, it passes at once at the death of the ancestor to the heir, and not to the administrator. But you are not to carry away the idea that the classification of a water right as real property has met with no opposition. Idaho takes another view, and some of the other states have followed the lead of that state. The Colorado Court says in one case: "The right to the use of water for irrigation is real property, and the proper method of conveying title thereto is by deed."

Our definition adds that a water right is an incorporeal hereditament. In law an incorporeal hereditament is anything, the subject of property which is inheritable and not tangible or visible.

From what has been said, it must be evident that the

sale of a water right by its owner, does not convey any specific quantity of water, but only sells the right to the use of the water.

In our discussion we have frequently used the term, priority of right. Let us see just what is meant by this expression. Prior to the commencement of the practice of taking water from the public streams for mining purposes in the early period of Western development the expression was unknown to English law as applied to water. It was the element of the superior right granted to the one who is first in time. Just as a man who comes first upon a body of mineral upon the public domain may claim the right to develop a mine at that place and to say to others who come later to keep their hands off, so it was held under the rules and regulations of the miners of the Western country, which were afterwards adopted as a part of the law of the state, that he who first diverted water from a stream for use in his mining enterprise, had by virtue of his first putting the water to use, acquired a right that must be recognized as coming ahead of all later comers—he had a prior right—to the extent of the amount of water which he had actually used, and the maxim recognized in other fields of the law, “He who is first in time, is first in right,” became the universal rule fixed in the practice throughout the Arid Region by enactments of legislatures, decisions of Courts and the uniform practice among the people. The date by which the prior right is fixed differs in the various states. Where the posting of a notice of intention to divert water is required, the right dates from the time of dating and posting the notice. Where no notice is needed, the time of commencing the work looking towards appropriation fixes the date of priority, and it is usually provided by statute that the making of the preliminary survey for the location of the diverting works shall be considered the date of commencing of the work.

Where a person goes upon a public stream, diverts

water and puts it to beneficial use and during all of the time he is moving from location to actual use, no one else attempts to secure rights upon the stream, no question of priority can arise, and even though he may not have been diligent, he will secure his right. This is because there is no one to raise the question of priority. But where several, perhaps many, are seeking to get water from the same stream or system of drainage, it becomes a matter of the greatest importance to determine who has the first right. The supply is apt to be inadequate for all who seek to get water, and the ability to prove that he is an early comer upon the stream may spell the difference between success and failure in his enterprise. The right to first take water from a stream carries with it the right to continue longest to use the water when the supply in the stream begins to fail. If parties have come upon a stream when the country begins to fill with settlers, and has taken water from a stream, he may go many years before any question of priority of right arises. As, however, the country fills up and the demands upon the stream are exceeding its capacity to supply, men begin to look into the history, and if they exist, into the records to determine who was the first users, and the question of priority becomes important.

As between different appropriators from the same source of supply the earlier is called the senior and the later the junior appropriator. When several claimants have perfected rights to water, each in his order is senior or prior in right to all who come after him, and each from the first to the last may take all the water in the stream if his necessities require it and his appropriation perfected by actual user has entitled him to it. That is to say, the first comer may take the whole and cut out all who have come after him; the second, after allowing for the satisfaction of the first may take all that is left; the third, after allowing for number one and two, may take all that is left, and so on. Each appropriator stands in

relation to the unappropriated waters of the stream at the time he initiates his appropriation as the first comer did to the whole stream at the time of his coming.

When, as is the case with nearly all of the streams of this Western country, the volume of water in the stream is subject to great changes, appropriators' rights attach in the order of their priorities. To illustrate, suppose four appropriators on the same stream have each secured the right to use five cubic feet of water per second of time for irrigation of crops. When in the spring after the dry and low period the water begins to rise in the stream the earliest appropriator has the right to all of the water until there is more than five feet running in the stream. When the supply exceeds five feet, the second comer has the right to all after the first five until there is ten feet in the stream. So the third has the exclusive right to all from ten to fifteen feet, and the fourth to all from fifteen to twenty feet, no one being allowed to take until all who are senior to him have been supplied. Again, when the water begins to fall in the late summer, the several appropriators are shut off from the stream in the reverse order of their appropriation, that is, the last comer must be the first to cease using, after him the one who was last senior to him, and the first comer on the stream is the last to be shut off. If after having secured an appropriation on a stream a person subsequently makes another appropriation on the same stream, his two appropriations have no relation to one another. Each stands upon its own merits as though they had been made by different persons in their respective times.

There is recognized a consumptive and a non-consumptive use of water. The former contemplates such a use as immediately returns to the stream the waters used, while the latter has in view such a use as the taking of water from the stream and using it at a distance or under such conditions as to preclude its return, or its return at a great distance down the stream. The first of these

uses is illustrated by the taking of water for power purposes where, after running over the wheels of the power plant, it comes at once again to the stream and in no manner interferes with the use of the water by others. The second condition is shown in the withdrawal of the water for irrigation. Here the water is carried out upon lands and if it returns to the stream at all, it will be after percolating through the soil and must reach the stream at a greater or less distance below the point from which it was diverted. It will be seen that an appropriator for power purposes who is junior to one for irrigation, may, though junior, insist upon the use of the water so long as he does not interfere with the rights of the senior. And further, if an appropriator for any purpose has appropriated all of the water in a stream, another may go upon the stream above and secure a valid appropriation for non-consumptive use, for in such a case the use of the latter will not interfere with that of the former.

As the right to appropriate water is limited to the appropriator's ability to use it beneficially, it follows that though a person has appropriated a certain amount of water, the right to take that amount of water from the stream exists only when he has need for it. If a farmer has thoroughly irrigated his crop and for a period of several days or weeks has no further need to irrigate, others may take the water from the stream during such waiting period. Appropriation may be for a certain date as during the months of June and July, or other period, and outside of the period so marked that appropriation will not be recognized. In the same manner an appropriation may be for certain days in the week, leaving the water to be claimed by others on the remaining days. So, also, the appropriation may be for certain hours of the day.

OUTLINE OF LECTURE 8

Rights of each subsequent appropriator.

Rank in priority for different uses.

Constitutional provision in Colorado.

Legislation as to domestic use.

Pro-rating statutes; object; effect.

Right to have water flow down to point of diversion.

Kind of works necessary to procure water rights.

Every diversion is artificial.

Two classes of dams—difference.

Precautions required when dam is in channel of stream.

Statute of Colorado; notice carefully the provisions of the statute.

Ditches over public domain, on private lands.

Measurements required—by whom?

Relation of State and National Governments in these matters.

Relation of State Engineer to dams and reservoirs.

Discussion so far relates only to construction of storage works; the matter of appropriation of water for storage will come later.

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LECTURE 8

Each subsequent appropriator is entitled to have the water flow in the stream in the same manner as far as the interference by others is concerned, as when he made his appropriation, and he may insist that the prior appropriators shall confine themselves strictly within the rights which the law gives them, that is, to the amount of water within their appropriation which they actually apply to some beneficial use. It follows that a prior appropriator for a non-consumptive use cannot change his use to a consumptive one.

There is a question which assumes more importance in some states than in others, but is of some interest in every state of the Arid Region; how do claimants for different uses rank in point of time. Here we find some departure from the strict application of the law of priority in time giving priority of right.

Under the early law no preferences were given to any particular use for which the water might be applied, so long as it was a beneficial one. Later the constitutions of some of the states, and the legislators in others, provided for preferences for certain uses of the water in times when there was not enough for all purposes. The use for domestic purposes is usually placed first, and after that the use for the particular purpose which seems most important in the particular states, as irrigation in some, mining or manufacture in others.

In Colorado the constitution provides, "But when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using the water for agricultural purposes shall

have the preference over those using the water for manufacturing purposes." In Idaho, the constitution provides that the preference shall be for, first, domestic use; second, mining, in mining districts; third, agriculture; and, fourth, manufacturing. Other states have similar provisions, though California does not seem to have recognized any preference. Such provisions modify the doctrine of priority, but only at times of scarcity of water. It has been held by the Courts that these provisions are prospective only, and that they do not affect the rights of those who had made their appropriations before the adoption of such provision. Such appropriators have a vested property right which even the state cannot take from them without compensation, hence though, in case of public necessity, this property, like any other, may be taken by the right of eminent domain, the owner must be paid for what he gives up.

In Colorado the legislature deemed it necessary to enact a law to supplement the constitutional provision, permitting the use of water for domestic purposes as first in times of scarcity, making it a misdemeanor where water is claimed under the constitutional provision for domestic purposes and is used for irrigation to any extent whatever.

In some of the Western states, another statute has been passed which interferes with the complete action of the doctrine of priority. I refer to what are called pro-rating statutes. These apply only in times of extreme scarcity of water, and are beneficial in that they seek to save the crops of farmers which otherwise would perish. But it is questionable whether a person prior in right should be compelled by law to be generous and self-denying. At a later time in these lectures, I shall attempt to discuss this question at greater length.

I have said that a person cannot acquire ownership of the water itself, especially while it is still running in the natural stream, yet his priority of right to take and

use a portion of the water gives him a very important legal and equitable property right in such water to have it flow down to his point of diversion, as it flowed at the time of the inception of his appropriation. This right is held to be an incorporeal hereditament appurtenant to the ditch. The prior appropriator of the waters of a stream has the right to insist that the water continue to flow as it did when he first made the appropriation, as far as the interference by other subsequent appropriators is concerned.

In those Western states in which the two systems of riparian rights and the Arid Region doctrine are maintained side by side, there is much chance for conflict of claims and the courts have been given much to do to protect the rights of all. At first it was attempted to apply the old English doctrine of riparian rights to its full extent, but gradually it came to be recognized that the country could never be developed if this rule was adhered to. Then it was sought to compromise the claims and require the person claiming water by appropriation to return the water to the stream before it reached a lower riparian owner. But such return of the water is in many instances impossible. The policy to which the states maintaining the two systems have been driven or are rapidly reaching, is that, in view of the great necessity of water for the development of the country, all that a riparian owner can claim is to have as much of the stream as he can put to some beneficial use, come down to his land and that all the remaining water of the stream is to be free to be appropriated by others. As between riparian owner and common appropriator the rule of priority must hold. If a person has acquired title to land from the government before any of the waters of a stream flowing by such land has been appropriated, his riparian rights to the extent of his needs for beneficial use must be respected by all later comers. So if before the coming of such a settler on the stream there have been perfected rights to

the use of the water, his riparian rights must be satisfied after those of the prior appropriators.

In March, 1877, Congress passed what is known as the Desert Land Act, in which appears among other things this language, "And all surplus water over and above such actual appropriation and use, together with the water of all lakes, rivers, and other sources of water supply, shall remain and be held free for the appropriation and use of the public for irrigation, mining, and manufacturing purposes, subject to existing rights."

This section has given rise to much discussion among the lawyers of the West, and the Courts have frequently been called upon to explain its real meaning. We have seen that as original owner of all lands and waters of the country, the government has title which it may dispose of as it deems best. It has also been shown that the government claims riparian rights on lands still belonging to it, subject to the law of the state in which certain lands may lie. And it has been shown that when a party secures title to land from the government before rights to water have accrued he takes his land with riparian rights on such streams as may flow contiguous to such land. What then did the broad statement in the Desert Land Act really mean? Did it mean that the government was releasing all claim to riparian rights? Some have believed so, while other are in doubt.

The reasoning of Mr. Kinney, in the work from which I am quoting so largely in these lectures, is so clear and to the point that I take bodily from his work the following discussion:

"The trouble seems to be in confusing the rights of the United States as the proprietor and as sovereign. To be sure, the United States was primarily the owner and proprietor of both the public lands and the waters flowing over them. The Government is still the owner and proprietor of all the surplus waters flowing over its lands, to which vested rights have not attached. But the United

States had not the sovereign control over waters which flow within the boundaries of a certain State, except so far as it has reserved such right. We do not believe that Congress has the power to abolish the law of riparian rights either in the Western or Eastern States, where a State by its laws has declared that, governing the subject of waters, the common law shall be followed. The sovereignty, jurisdiction, and control over all waters flowing within the boundaries of a State are left to the laws of that State upon its admission to the Union. That State may adopt the common law as it is strictly construed in England and in the Eastern States of this country; it may adopt the modified form of that law, as has been done to meet the peculiar conditions of Western States; or, upon the other hand, it may entirely abolish the common law upon the subject of waters and adopt in lieu thereof the Arid Region Doctrine of appropriation only; or, again, it may adopt both the common law and the doctrine of appropriation. But, as far as Congress is concerned, it cannot force any particular law governing waters upon any State. As was said by Mr. Justice Brewer in the case of *Kansas vs. Colorado*, 'it may determine for itself whether the common law rule in respect to riparian rights, or that doctrine which obtains in the arid regions of the West of the appropriation of waters for the purposes of irrigation, shall control.' Congress cannot enforce either rule upon any State. Hence, it must follow that the Desert Land Act of 1877 did not, nor could it, abolish the common law of riparian rights in a State where that law had been adopted as at least one of the rules of law governing waters within its boundaries. The only effect that that Act had, or could have had, in regard to the subject under consideration, was to emphasize the right already granted under the Act of 1860 and as amended in 1870, to the effect that the surplus waters of the natural streams, or other sources of water supply, flowing over the public lands might be taken under the doctrine of appropriation,

as far as the rights of the Government as the owner thereof were concerned, for irrigation or other beneficial purposes.

"There was no intent upon the part of Congress to change, nor could it change by the Act in question, the rule that any State has the right to govern the waters within its boundaries. As the owner of the surplus water flowing over the public domain, however, the effect of this clause of the Desert Land Act was merely for the Government to emphasize the fact that the waters flowing over its public lands were subject to further appropriation; and in doing this the Government, also as the riparian proprietor of these waters, waived its right to the undiminished flow of the natural streams, in order that these appropriations might be perfected."

If prior appropriators do not use all of the waters of a stream the riparian rights of the one who gets title from the Government will attach and will be ahead of subsequent attempts at appropriation.

In the case tried in the United States Court between the State of Kansas and the State of Colorado over the use of the waters in the Arkansas River, the claim made by the State of Kansas was based on the doctrine of riparian rights. Kansas claimed that, as a riparian proprietor, it was entitled to the rule of the undiminished flow theory of the common law as it is recognized and enforced under a strict construction, and that it was entitled, as a matter of right, regardless of the rights or needs of the appropriators above, and that, too, without having shown that it was damaged to any considerable extent. In the State of Colorado many appropriators had secured rights to water from the Arkansas River, under the laws of Colorado, and vast amounts of money had been expended in the construction of works for the direct use as well as for storage of water. The Court, speaking by Judge Brewer, summed up the case by saying that the appropriation of the waters of the river by Colorado, for the pur-

poses of irrigation, had diminished the flow of the water into the State of Kansas, that while the influence of such diminution had been of perceptible injury to portions of the Arkansas Valley in Kansas, yet to the great body of the valley, it had worked little if any damage, and that the Court dismissed the suit brought by Kansas. This was a direct and very severe blow to the doctrine of riparian rights.

Having considered the nature of a water right, what steps are necessary to secure it and the necessity of so using the right as not to interfere with the rights of others, I pass on to the subject of the means which may be used to secure the use of the water and the kinds of works required to comply with the law.

We may repeat what has already been said, that in general any means may be adopted which makes an actual diversion of the water from the stream. As the right to use the water makes it a condition precedent that the water be removed from the stream, there is an implied permission to construct such works upon the banks of the stream and even in its channel as may be necessary to secure that end, hence it follows that an appropriator may construct a dam across the channel and so divert the water into his ditch; but in such construction, he is liable in damages to all parties who may be injured by his action. He must not raise the water so high as to set it back and overflow lands above. He must not so impede the flow of the water as to interfere with the rights of other appropriators below him.

The California Court uses this language, "Every diversion from a stream is artificial; a disturbance of the natural order of things. The right to take the water at all is a right to change the ordinary course of nature; and the methods employed, so long as their use does not infringe the like and equal rights of others, is immaterial." In an Oregon case it was shown that a dam erected by an appropriator in the stream, interfered with the flow of

water to a prior appropriator below the dam, and the Court, finding that to order the removal or cutting down of the dam would work great injury to its constructors, ordered them to deliver the water to the complaining party through their ditch.

There are two classes of dams, those used for diversion of water into ditches for direct irrigation, and those for reservoir purposes. The former are usually comparatively low and present little danger of causing great damage to others in time of high water. The reservoir dams, however, built in the channel of the stream, often to great height and impounding above them vast bodies of water, are a constant menace to settlers in the valley below them as well as to the works of other lower appropriators on the same stream. The Laws in the various Western States are very exacting as to the kind of work, the supervision during their construction, and the subsequent use of such structures. It is not sufficient that ordinary caution be exercised in the construction of such works; the law calls for extraordinary caution. The fact that the works may be carried away by an unprecedented flood in the particular stream does not relieve the owners from liability for damage that may be done.

The statute of Colorado reads on this subject, "None of the provisions of this act shall be construed as relieving the owners of any such reservoir from the payment of such damages as may be caused by the breaking of the embankments thereof, but in the event of any such reservoir overflowing, or the embankments, dams or outlets breaking or washing out, the owners thereof shall be liable for all damages occasioned thereby."

The right to construct ditches over the public domain is given by the Acts of Congress of 1866 and 1870, supplemented by the Act of 1891. Under the provisions of this last Act, rights of way may be acquired for the construction of ditches, reservoirs, and canals over the public lands and reservations of the United States.

Such structures may not be constructed on private lands without the consent of the owner of the land, unless the right is obtained by the exercise of the right of eminent domain. In all of the Western country the use of land for the construction of irrigation works is considered a public use, and therefore possession for such purposes may be secured by the right of eminent domain, which requires of course, that property so taken shall be paid for. This right cannot be exercised to secure land for private use.

A person wishing to divert water from a natural source and to convey it to his lands has the right to avail himself of all the natural conditions which may aid him in the work, such as using natural draws and ravines, and he may even use the channel of the stream as a part of his ditch system to reach his land. Water may be taken from the stream and carried for a distance in an artificial ditch and then turned back into the stream, and taken out again at a point below, or water developed from some other source than the stream may be turned into the stream and taken out below, care being taken in all such cases not to interfere in any manner with the full enjoyment of their rights by other appropriators on the stream. It is required that parties using the natural stream as a part of their carrying system shall erect and maintain accurate measuring devices to measure the amount turned into the stream and the amount withdrawn therefrom. Allowance must also be made for loss by seepage and evaporation while in the stream. Such use of the stream will not be permitted if by the turning in of the water to be so carried, the volume of the stream is so increased as to cause it to overflow its banks and do damage, and injuries arising from such a cause render the party so using the river, liable for damage that may result.

As remarked above, the Act of Congress of March, 1891, gives the right to construct reservoirs and ditches upon public land and Government reservations. The Act

provides that when the proposed work has been approved by the Secretary of the Interior lands sold after such approval shall be sold by the Government subject to such rights of way. The Act only applies to vacant and unoccupied Government land, and one section of the Act reads, "Whenever any person or corporation, in the construction of any canal, ditch, or reservoir, injures or damages the possession of any settler on the public domain, the party committing such injury or damage shall be liable to the party injured for such injury or damage." This applies to settlers on Government land who have not yet acquired title, but are injured only in their right of possession. The privilege to construct works on the public domain does not take from the State in which such works are located, the right to control the manner of construction or any other of its sovereign rights in the premises. The Act of Congress especially provides, "And the privilege herein granted shall not be construed to interfere with the water for irrigation and other purposes under the authority of the respective States and Territories."

In nearly all of the Western States, the construction of reservoirs, if of considerable size, is, by statute, placed under the direct supervision or inspection of some public officer, generally the State Engineer. The statute of Colorado provides, "No reservoir with embankments or a dam exceeding ten feet in height shall be made without first submitting the plans thereof to the county commissioners of the county in which it is to be situated, and obtaining their approval of such plans."

"No reservoir of a capacity of more than seventy-five million cubic feet of water, or having a dam or embankment in excess of ten feet in vertical height, and covering an area of more than 20 acres shall hereafter be constructed in this State, except the plans and specifications of the same shall first be approved by the state engineer; and the state engineer shall act as consulting engineer during the construction thereof, and shall have au-

thority to require the material used and the work of construction to be done to his satisfaction; and no work shall be deemed complete under the provisions of this act until the state engineer shall give to the owners of such structures a written statement of the work of construction and the full completion thereof together with his acceptance of the same, which statement shall specify the dimensions and capacity of such reservoir or reservoirs."

"The owners of such reservoirs shall pay to said state engineer his actual expenses incurred in making personal inspection and five dollars per day and expenses to any deputy appointed by him to attend to such supervision when necessarily employed for such purpose."

"The state engineer shall annually determine the amount of water which it is safe to impound in the several reservoirs within this state and it shall be unlawful for the owners of any reservoir to store in said reservoir water in excess of the amount so determined by the state engineer to be safe."

Our discussion to this point in relation to reservoirs has had to do with the right to construct the works for receiving and holding the water. I shall take up in the next lecture the subject of the right to take water from the public supply and store it in reservoirs.

OUTLINE OF LECTURE 9

Must have valid appropriation to have right to store.

Reasonable time to apply to use.

Colorado statute on storage.

Conflict of right to store and for immediate use.

Any attempt to get double use of appropriation is illegal.

Direct irrigation defined. Definition of storage.

Storage in early part of season to be used in later part.

Rule of priority between different reservoirs.

Stored water is personal property.

Right to vary from original plans of construction.

Right to make changes in original plans in other respects.

The primary thought must be—will any proposed change injuriously affect other appropriators.

Possible affect of change of point of diversion.

Changes in construction of dam.

New comers have right to have conditions remain as they found them.

Right of way is an easement.

Character of diversion works may be changed.

Owner of right of way must protect the owner of the surrounding land.

Extent of easement is fixed and cannot be changed.

You cannot force benefits upon a man.

If channel of stream is changed by act of nature, what are appropriator's rights.

Limitation of appropriator's rights to time for which appropriation was made.

Right to take water from one valley to another.

Right to change place of use. Attempts in some States to prevent this.

Right to change kind of use.

Excessive claims in early days of irrigation.

LECTURE 9

To secure the right to store water there must be, as when water is taken for direct irrigation, a valid appropriation of the water it is proposed to store, and the water must be applied to a beneficial use. It is the policy of all of the Western States to have all of the available water put to some beneficial use, and, therefore, any water found running to waste may be appropriated for immediate use or stored for future use. A reasonable time is given in which to apply the water to use, therefore the holding of the water in the reservoir for a few months does not endanger the appropriation.

The right to store water is given in the Western States by legislative enactment. In Colorado the statute reads, "persons desirous to construct and maintain reservoirs, for the purpose of storing water, shall have the right to take from any of the natural streams of the state and store away any of the unappropriated waters not needed for immediate use for domestic or irrigation purposes; to construct and maintain ditches for carrying such water to and from such reservoirs, and to condemn lands for such reservoirs and ditches in the same manner provided by law for the condemnation of lands for right of way for ditches." Other states have similar statutes.

A riparian owner is held to have the right to store water so long as in doing so he does not interfere with the right of other riparian owners further down the stream to also store water.

Probably the most serious question which has arisen in this connection has been the relative rights to store water at certain seasons and to claim it for immediate use.

In a Colorado case, the Court says, "If water for

direct irrigation can only be utilized for that purpose, the result would be to retard agricultural progress and limit the growth of agricultural products to those which can be matured by means of direct irrigation early in the season."

It is also held in Colorado that water which is appropriated for direct irrigation cannot be stored and afterwards drawn off and used so as to do double duty, also that it was wrong to grant two separate reservoir priorities of the same capacity and date to the same reservoir as the result of the same construction and the same act of storing the water. Nor can a system of exchanges of water between reservoirs be made so that the effect would be to convert a junior into a senior right. In a case going up from Larimer County, Colorado, the Court said in relation to an attempt to secure two fillings of a reservoir in one year, "We do not attribute to the inventors of this scheme a design to obtain an undue advantage over other appropriators; but if such scheme of exchange * * * is put into practice, it will necessarily convert a junior into a senior right. It will make many of the reservoirs of the appellants, which were built and used for storage a decade before Fossil Creek reservoir was conceived, subordinate to the latter. * * * A double filling in effect would give two priorities of the same date and of the same capacity to the same reservoir, on the same single appropriation, which is impossible in fact and in law, and if allowed would violate the fundamental doctrine of the law of appropriation—he who is first in time is first in right."

By direct irrigation is meant the diversion and carriage of water by any means and the application of the water to the land in practically one and the same operation.

By immediate use we mean the immediate application of the water after diversion from the natural stream to the land as limited by the appropriator's actual needs,

and as distinguished from the storage of the water for future use.

Storage is the temporary accumulation or conservation of water for future use. The water stored may be from one of two sources, either the residue from heavy flows or flood waters during the spring and winter months, or from the normal flow of the stream. Of course the storage of water is not in and of itself a beneficial use of water; it is merely an incident, a means to an end. Here as in direct irrigation, the test is the successful application of all the water claimed to a beneficial use. The question has been before the Courts, can the owner of a prior right to make direct application of water for irrigation purposes during the irrigation season, store the water for use later in the season? The Courts have long recognized this right. The Colorado Court says on this question, in the Seven Lakes Case, "It appears that the stockholders of this reservoir Company, instead of planting crops which require irrigation during the early part of the season, utilize their lands by growing crops which do not require irrigation until about August, when the direct supply through the ditches is not sufficient. And so instead of applying the water to which they are entitled for direct irrigation early in the season, they store this water for use later to mature crops, like potatoes and beets. If the theory is adopted that one owning a priority for direct irrigation may not cease to utilize it for that purpose, and store it for use thereafter in the same season, the result would be to take from the owner of such priority his rights and confer them upon others growing crops of a different nature. In the case of Strickler vs. Colorado Springs, the right was recognized to change the use of water from agricultural to domestic purposes. If this is legal, certainly no good reason can be advanced why the change from one agricultural use to another may not be allowed." The Court, at a later discussion of the case on motion for rehearing said, "This

does not enlarge the use of the priorities of the reservoir Company, either in time or quantity; neither does it confer upon it any right to divert and store the water represented by its priorities every day during the irrigation season, or to convert such priorities into a storage right during the non-irrigating season, but limits its rights strictly to the diversion of water, both as to volume and time, to the same quantity and the same time already indicated. No rights are infringed, no one is deprived of water to which he is entitled by reason of the change in the method of use. There can not possibly be any greater burden imposed upon the common source of supply. Neither are any priorities disturbed."

So much for the question of relative time of application of water. As between different reservoirs claiming water from the same source of supply, the rule of priority governs, and the reservoir having the prior right has the first right to fill to the extent of its decreed right even though his doing so leaves no water for subsequent appropriators for the same use. But, as we have seen, when the reservoir is filled once for any season, there is no further right to fill it again the same season. After water has been once stored, it becomes personal property and may be sold, contracted for, and disposed of as personal property generally.

An appropriator is not always situated so as to be able at the time of commencing the work of securing an appropriation to see in advance every part of his proposition. He may and often does wish to make some change in the nature of his diverting works, in the size, course or grade of his ditch, and even in the place and manner of use. I shall devote a few paragraphs to the consideration of how far he may vary from his original plan as shown on plats filed in the proper offices.

It may be desired to change the point on the stream from which diversion is proposed to be made. The Colorado Court has said, "An appropriator of water may not

change the place of use, the point of diversion, the character of the use, or make an enlarged use of his original appropriation, to the prejudice of the rights of the other appropriators from the same source of supply after their rights have attached." The question, then will always be, shall I by the proposed change of the point of diversion, put any other appropriator on the stream in any worse position for the securing of the water to which he is entitled than he would be if I carried out my original plan? If I do the change will not be permitted; if I do not there can be no objection to it. The injury which may fall upon others from such a change may be from several causes. If I go further up the stream with my headgate, it may so decrease the volume of water reaching an appropriator who diverts below my new point of diversion but above my old one as to make it more difficult for him to get water into his ditch. My change may carry water far out from the stream and prevent its return only after some distance has been traversed, whereas under my original diversion the return of water to the stream may have been more nearly immediate. There is a principle which the Courts have constantly held in view, that an appropriator is entitled to have the stream remain practically in the same condition as he found it at the time of making his appropriation.

The Colorado Court has said, "The right to change the point of diversion of water which has been obtained as the result of an appropriation, is one of the incidents of ownership, and existed and was exercised in this State independent of statute, and the only limitation is that the rights of others must not be infringed."

This right is provided for by the statutes of nearly all of the States. In Colorado there is a regular statutory proceeding provided for in which the district court passes upon the right under the particular state of facts presented by each case and denies the right or by decree grants it. It must not, however, be supposed that the

right comes from the operation of the statute, the right exists as we have seen independently of statute, this only regulates the remedy by which it may be established and placed so as to be known as a matter of record.

An appropriator who has constructed a dam may change its dimensions, making it longer or higher as he may desire, always as before having in mind the accrued rights of others, for here as elsewhere the change is permissible only if it leaves others in as good position as it found them.

If new comers on the stream, by lawful subsequent appropriations, have acquired the right to use a certain amount of water from a stream, for any purpose, according to the condition that the stream was in at the time of such appropriation, the first appropriator, in spite of his priority, is not authorized, by erecting a high dam, to interfere with or injure these later rights. This is true if the stream has by reason of the accumulation of debris, so risen as to make it more difficult for the prior appropriator to get his supply of water. He may sue those who have caused the accumulation and recover damages from them, but he cannot raise his dam to the injury of later appropriators.

It usually happens that when a person changes the point of diversion from the stream, a change will be made necessary in the location of at least a part of his ditch. As far as his right to the water, this makes no difference, and if the ditch is on his own land, of course no one can complain. But if the ditch is on another person's land, the change will necessitate the acquiring of a new right of way. An appropriator cannot go upon the lands of another person across which his old ditch ran and for which he has a right of way, and without obtaining the consent of the owner, arbitrarily, change the line of the ditch to some other part of the land. A right of way for a ditch or canal over lands is an easement, and the owner

of an easement can make no changes in it without the consent of the owner of the fee.

The Court in a case in the State of Washington spoke in this manner, "The alteration by the action of the elements of the physical conditions so as to make the enjoyment of the easement impossible or more difficult was the party's misfortune as an impairment of his property. This furnishes no reason why another should be required to contribute to restore the enjoyment of the property, even if the thing to be contributed be something the other does not need, and the surrender of which will not injure him."

A party may change the character of his works by which the water is diverted or conveyed, but, as before, the change must work no injury to others. He may change an open ditch to a closed pipe, or to a cement conduit, if upon his own land or upon the lands of another where he has secured the right. But if by allowing the water to run in the open channel some of it would seep into and percolate through the soil, and thus again reach the stream, to the benefit of other users, the mode of conducting the water cannot be changed. The owner of a right of way for a ditch through the lands of another, cannot permit the ditch to fill up and obstruct the flow of the water so as to cause it to overflow or otherwise injure the lands of the land owner, nor can he enlarge his ditch or increase the flow of the water in it, or operate or use it in such a manner as to increase the burden, without acquiring the right in some legal manner. An easement for a ditch becomes fixed and definite as to its size upon its construction and use, and thereafter no change in its size or character can be made without the consent of the owner of the land. One Court uses this language, "Even if it were shown that the change would be an actual benefit to the land owner, we would have no power to compel them to accept the benefit. The question is one of property rights, not of benefits or injuries. No one has a

right to compel another to have his property improved in a particular manner. It is illegal to force him to receive a benefit as truly as to submit to an injury."

On the other hand, as long as the appropriator makes a reasonably economical use of the water without waste, it makes no difference what means he adopts in doing it. If his ditch crosses the land of another, he cannot be compelled to change the character of his works where he is doing no unnecessary damage. The Court of California says, "Ditches and flumes are the usual and ordinary means of diverting water in this State, and parties who have made their appropriations by such means, cannot be compelled to substitute iron pipes, though they may be compelled to keep their flumes and ditches in good repair, so as to prevent unnecessary waste."

Where by some act of nature, the channel of a stream is changed so as to no longer bring the water to the headgate of an appropriator, the rule in riparian states is that the appropriator loses his riparian character and so his right to the water. But under the doctrine of Prior Appropriations, he may follow the stream, or he may go upon the lands of others and remove the driftwood or sand which has accumulated and caused the change in the channel and restore it to its old channel; in doing so, however, no unnecessary injury must be done to the lands of another in making the change.

When water has been appropriated for certain days, or hours or other definite times, the appropriator is limited in his right to take it to the times during which he made his first claim. As we have seen, the time of actually applying the water to its use may be changed, as when stored at one time to be used at a later time, but it must be taken from the stream during the times designated in his original appropriation.

The Courts in none of the Western States will at this late date question the right of an appropriator to take water from a stream and to conduct it by tunnel or other-

wise out of the valley of its origin, across a water shed, into another valley and there apply it to use. This question came up at a very early date in Colorado, in the case of Coffin vs. The Left Hand Ditch Co. and the doctrine as stated above was announced, and has been repeated in a number of cases since in this State. Other Western States have followed this decision until it may be taken as accepted doctrine throughout the West. There are certain limitations to this right which must be kept in mind. Where water has been used in one watershed, and other parties are receiving benefits of seepage and percolation, a California case held that it cannot be conducted to another watershed, whereby the seepage is lost."

An appropriator has the right to change the place of use of the water, provided that in making the change no injury results to others. The water once used on a certain piece of land may be used on other land. The land may be sold and the water right retained, or the water right may be sold without selling the land. Several of the States in the Arid Region have enacted laws making water when once appropriated for use on a certain piece of land inseparably appurtenant to that land, but when cases involving this question have come before the highest Courts of those States these Courts have almost without exception refused to enforce the statute. In Arizona, the Court says, "Natural justice is subserved by recognizing the right of a water holder to change his appropriation to lands capable of profitable cultivation." Colorado announces the doctrine in these words, "It is now the settled law that water rights, though primarily applied to a certain tract of land, may be severed from it, used on other land by the owner, or sold." The Idaho Court says, "Users of water from a ditch or canal acquire such a property right as they may transfer to other lands under such ditch or canal." In Montana the language used is, "A prior appropriator cannot encroach upon the rights of a subsequent appropriator by changing the place of use. But if

others are not injured it may be changed." The Nebraska Court says, "It has been the uniform rule to allow appropriators of water, after it has been actually taken and applied to some beneficial purpose, to change the place and character of its use." In Oregon, "A prior appropriator of water for beneficial purposes may change the place of use if it does not prejudice the rights of subsequent claimants."

Changes in the use of water may be made, subject always to the rule that such change shall not injuriously affect other appropriators. In the case of Strickler vs. Colorado Springs, the Court of this State held that water that had been appropriated and used for irrigation might be sold to a city for use as a city water supply. In the various States the statutes are different regarding the subject of changing the use and the place of use of water. In California, the statute provides for the change of the point of diversion but says nothing of the change of use. Some of the States following the example of Colorado provide that the right may be exercised upon approval of the Court or certain officers named, and mark out certain proceedings which must be carried out. Some States, like Wyoming, seek to make the water when once appropriated an inseparable appurtenant to the land for which it was first appropriated. The States of Idaho, Nebraska, Nevada, North Dakota, Oklahoma, South Dakota, and Utah followed Wyoming in this last measure.

I wish now to call your attention to the law of irrigation as it applies to the subjects of the quantity of water which may be claimed under an appropriation, how the water is measured the duty of water, and how water must be used to avoid waste.

When men commenced to use water for irrigation in our Western country they had no knowledge of how much water would be required to maintain a growing crop. Nothing was known of how to economise in the use of water, and indeed, as there was plenty for all comers at first

there was little thought of trying to economise. Water far in excess of the needs of the appropriator was drawn from the stream, it was carried through ditches not well constructed to avoid loss by seepage, and was poured over the land in a lavish manner. The roads below the irrigated fields were converted into ponds; low places were filled with waste water and permanetly ruined, or reduced to a condition to require extensive drainage to bring them back to condition for cultivation. It is believed by many who have given the subject careful consideration that for many years more crops were lost by an excessive use of water than from a shortage of this essential element.

OUTLINE OF LECTURE 10

Lands near stream first irrigated; higher lands later—
Seepage, affect upon rights of those near stream.

Experience around Fort Collins, Colorado.

In Idaho. Amount appropriated limited to amount needed and used.

Relation of capacity of ditch to question of amount of appropriation. What determines the capacity of ditch.

What determines the measure of an appropriation in Oregon. Question of readjudication.

Diligence as applied to a settler who is improving his land year by year.

Measurement of water. Miner's inch defined.

Why is miner's inch not satisfactory. Question of head. Second foot and acre foot.

Duty of water—different under different conditions.

Right to sell excess water. Two cases considered and distinguished.

Minimum duty, or maximum quantity per acre.

Courts may fix higher duty.

Point of measurement; reasons for measuring at point of diversion, and at place of use.

Rotation; how practiced.

Wyoming statute on rotation.

LECTURE 10

At the close of our last lecture, it was pointed out that owing to a lack of knowledge of the whole subject of irrigation, much loss and real damage had resulted to the early settlers in the Arid West. The subject was new, and the Courts were without precedent for the decision of questions which soon began to arise between irrigators. No unit of measurement had been adopted by which the respective rights might be gauged; the subject of damage from overflow, seepage, and trespass upon ditches was new. When litigants came into court asking that their rights be protected, the Court might well ask, just what are your rights?

In the earlier days the lower lands, those nearest the streams, were the first to be settled upon, it being considered impossible or unprofitable to attempt to get the water to the higher lands. These were used for grazing and range purposes. Later ditches were constructed to bring water to the higher lands, and when these had been cultivated for a few years, the water which had been applied to them commenced to find its way by seepage to the lower lands. This produced a condition under which the early appropriator on the low lying land could not use the full amount of water called for by his appropriation, and until this seepage commenced actually used on his lands. As under the law in all of the Western States, one can claim only the amount which he actually applies to some beneficial use, the question arose, does the early appropriator, now that much of the water needed by him is furnished by seepage from above, still have the right to hold, as against others needing water from the same stream, the whole of his original appropriation? The disposition of the Courts has been to answer this ques-

tion in the negative. How complex and at the same time important this question had become is well illustrated by the experience of irrigators in the section of country around Fort Collins. A high standard of irrigation was early established in this valley, and excellent methods, for that time, had been employed, both in the division of the waters of the Cache la Poudre River among appropriators and in their application of the water. After a number of appropriations had been made and questions began to arise between appropriators, the whole matter was thrown into court for an adjudication of the respective rights. Then it was found that twenty-three early ditches were claiming water in the aggregate to irrigate one thousand acres of land. The Ditches were small and had been carried out only to the bottom lands near the river, but their combined appropriations, as fixed by decree of court, amounted to 692 cubic feet per second or enough water to irrigate 41,529 acres of land, or more than forty times the amount of water actually used, and more than 100 times as much water as needed under the methods of irrigation now in use. A case arose in Idaho which furnishes another striking example; the testimony in the case showed that the entire flow of the stream was about 100 inches of water. The District Court decreed to the various claimants, water to the amount of 370 cubic inches during the early part of the season and lesser amounts in the later part, and all of this in total disregard of a prior appropriation of one of the parties to the suit which claimed 125 inches from the stream as first and earliest appropriator. When the case reached the Supreme Court, Mr. Justice Houston, in handing down the opinion of the Court, said, "The individual who causes two blades of grass to grow where but one grew before, is held in highest emulation as a benefactor of his race. How, then, shall we rank him who, by judicial fiat alone can cause 400 inches of water to run where Nature only put 100 inches?"

Upon the question of the amount of the appropriation, it is settled law in the states of the Arid West that the quantity of water that can be lawfully claimed is limited to the quantity or amount which is needed and within the amount claimed, and within a reasonable time, is actually and economically applied to the beneficial use for which it was originally appropriated.

The capacity of the ditch, if it carries more water than the appropriation amounts to, has nothing to do with determining the amount of the appropriation; but if a ditch is constructed of a certain size and the water used is carried through it, the appropriation cannot be declared to be larger than the capacity of the ditch. This is evidently a correct rule, for no matter what a party may try to show he originally appropriated it is evident he can never have put to beneficial use more water than his ditch would carry to his lands. The capacity of a ditch has been repeatedly held to be determined by that point near its upper end which will carry the least amount of water. The capacity is measured by the width, depth and velocity or grade of the ditch. The capacity of a reservoir is measured by the amount it will take to fill it once. In the early decisions of Courts when few of the factors entering into the problem were known accurately, we find an inclination to allow the appropriation to be determined by the amount the ditch would carry, but in the light of more recent information this is found to be an entirely unsafe rule. A person actually applying ten feet of water to a beneficial use, and this, as we know, marks the limit of his appropriation, might easily construct a ditch to carry fifty feet. The modern rule may be gathered from the language used by the Courts in several of the states. In Nevada it is said, "If the capacity of his ditches is greater than is necessary to irrigate his farming land, he must be restricted to the quantity needed for the purposes of irrigation, for watering his stock and for domestic purposes." In a Colorado case, an appropriator had at a

very early date constructed a ditch with a capacity of thirty-three feet. After many years he sold to a ditch company thirty feet of his claimed appropriation. The matter was brought into court where it was proved that he never had attempted to irrigate more than 120 acres of land. It was decided that the appropriator was entitled to but three feet of water, or enough to irrigate his 120 acres.

The Oregon Court said in a recent case, "The adaptability of arid lands to the growth of particular crops by careful irrigation furnishes the test of the quantity of water reasonably necessary for that purpose. The number of acres of land that is susceptible of cultivation, the degree of sterility of the premises, the most profitable crops that can be raised by artificial application of moisture and the quantity of water reasonably necessary to produce the harvest of an acre by careful husbandry, are elements to be considered in determining the measure of an appropriation." In Montana it was said by the Court, "If the appropriator's needs exceed the capacity of his means of diversion, then the capacity of his ditch measures the extent of his right. If the capacity of his ditch exceeds his needs, then his needs measure the limit of his appropriation."

After many rights had been fully adjudicated and settled, an attempt was made in this state to secure a re-adjudication on the ground that mathematical science had developed more accurate methods of measurement than were known at the time of the former adjudication. The case involving this question went up from this county. The Court said, "If we should now correct the decree of 1882 for the reason urged, then at the end of the next decade there may be evolved a new method of determining the carrying capacity of ditches, giving even more accurate results than under the Kutter formula, and, in an action then brought to correct the mistake made by us now in applying the Kutter test, the Court must set

aside our decree and enter a new one, and so there would be no end to the litigation, provided new and more accurate tests are discovered."

I have shown that it is the accepted doctrine in all of the Western states that a person cannot appropriate more water than is necessary for the supplying of his needs. It has also been shown that diligence must be exercised in applying the water to a beneficial use. In apparent violation of this rule, but in strict agreement with the equities of the case, it has been held that where the purpose of the appropriation is for the irrigation of new land by a settler, although the quantity first used is not the full amount claimed, the settler may year by year increase the quantity used, as he gets his land ready for cultivation, up to the full amount of his claim, and that, too, as against the claims of subsequent appropriators, provided he does not delay the final use of all the water claimed for an unreasonable time.

The rule seems to be well settled that where he has used reasonable diligence the additional application of the water annually to meet the increased demand causes the appropriation to relate back to the inception of the claim, thus cutting off all adverse claims to the use of the water. Of course, in order that a settler may invoke this rule, the intention to claim the full amount needed for the irrigation of his whole land must exist at the time of making his original appropriation and must be declared at that time. Touching this point the Colorado Court has said, "The test is not necessarily the number of acres irrigated each year. If these tracts were farmed, and all the water necessary to irrigate them was beneficially used with reasonable diligence in the improvement of the land, it is sufficient. What was a sufficient amount of water, and was it applied to a beneficial use, is the test."

In discussing the measurement of water, it is not my intention to trespass upon the ground of the irrigation engineer; however, in stating the law of the subject, it

will be necessary to state some facts which have been already given in your study of the purely engineering phase of the subject.

It was early recognized that there was need of a fixed measure of water in order that conflicting claimants might have a proper adjudication of their rights. In California, and in other states where the first use to which water was applied was for mining, a measure was adopted known as the miner's inch. This may be defined as the amount of water that will flow through an orifice one inch square in a vertical position and under a standard head fixed either by custom or law, and in the computation of which each square inch of the opening represents a miner's inch. There was no way of determining in gallons or cubic feet the amount of water one was getting by this measurement. It is evident that an orifice three inches square would deliver much more than nine times the amount delivered by one square inch. A source of confusion was found in the fact that in different states the head or pressure under which the water was drawn differed materially. California required a four-inch pressure. Colorado five inches measured to the top of the orifice. Idaho four inches. In Oregon, nothing was said on the subject in the statute and the Supreme Court in a case before it said, "It will be presumed that it is to be measured under a six-inch pressure." This uncertainty as to just what a miner's inch of water is, led to the adoption of a more accurate and unvarying unit of measure, known as the second foot or acre foot. In states where many rights had already accrued measured by the miner's inch, an equivalent was adopted in fractions of the second foot, or the reverse, the number of miner's inches being specified which should equal one second foot. North and South Dakota and New Mexico declared that the miner's inch shall equal one-fiftieth of a second foot. Nebraska stated it the other way, saying that fifty miner's inches shall equal one second foot. In Arizona and Montana the

statute reads that 100 miner's inches shall equal two and one-half cubic feet per second. The California statute of 1901, and the statute of Oregon adopt the same equivalent as the last named. In Colorado thirty-eight and four-tenths inches are declared to equal one second foot. The second foot is a definite and exact unit of measurement. It is based upon a cubic foot of water, or the amount of water required to fill a vessel having the capacity of 1,728 cubic inches. The cubic foot per second of time, or the second foot is a cubic foot, or 1,728 cubic inches of water passing a given point in one second of time. Some states have adopted this unit and along with it the acre foot, or the amount of water required to cover one acre one foot deep, or 43,560 cubic feet of water. The second foot is easy to calculate even by those having no exact knowledge of engineering science. The average farmer using the weir system of measurement finds little difficulty in determining how much water is flowing into his lateral. The engineer can readily express in terms of this unit the amount of water flowing in a stream, and the owner of a reservoir finds a ready expression of the capacity of his reservoir in terms of second feet, or in acre feet.

It does not come within my province to discuss the different forms of weir and the discharging capacity of variously formed orifices, I therefore pass on to the subject of the duty of water, a subject with which the Courts have been frequently occupied. The duty of water may be defined to be the ratio between the acreage to be watered and the quantity of water required to properly water it. Different conditions of soil, climate, season and contour cause large variations in the duty of water in different sections. Experience has shown that many irrigators use too much water, thus decreasing the duty, while others increase the duty by endeavoring to get along with less than a sufficient quantity. The effort has been, and many experiments are now in progress to de-

termine what under given conditions is the economically best ratio between land and water. In recent years the courts are being often called upon to establish by decree the duty of water for certain lands. There is no doubt of the right of the Court to do this, and, indeed, it has been declared by more than one Court that it is the Court's duty when questions involving the duty of water under certain conditions come before it to settle the question and fix the duty by decree. It is evident that there can be no fixed rule applicable to all cases, each case must be determined by the facts shown to exist in that particular case. The wasteful methods of diversion, in conducting the water, and its application to the land, so common with the early settlers, can be looked upon only as a privilege permitted merely because at that time it could be exercised without material injury to others, there being no others seeking to take water from the same source. No vested right to continue these wasteful methods was acquired by the prior appropriator. Nor did he acquire any vested right to the surplus water which he had draw from the stream over and above the proper duty of the water for the land he irrigated. Any such surplus the courts have the power to award to subsequent appropriators. Where the statute of a state fixes a minimum duty for water, the Courts can not award a lower duty, but, if the evidence in a case warrants it, they may award a higher duty.

It may be necessary here to insert a caution against the misconception of what has been said about the right of a person to hold and control an excess of water. You will notice that it has been said that when a person has by strict conformance to the requirements of the law acquired a right to the use of a certain amount of water, he has such a right in the water as to enable him to sell and give title to that right to use. If from the change of conditions, he finds after the lapse of some years that he can irrigate his land with less water than was at first re-

quired, he may legally sell the surplus. No Court would attempt to take from him any of the water included in his original appropriation. Here his holding is based upon a valid original appropriation and the use of all of the water appropriated. The other case is entirely different. A person takes from the stream more than he has ever been able to put to beneficial use; because of the relative abundance of water no one for some years may question a right to more than he could put to beneficial use, and, therefore, he can justly be made to give up all that he has been accustomed to divert in excess of his real needs.

Some of the states have fixed by statute the minimum duty of water, or, which amounts to the same thing, the maximum quantity allowed per acre. This amount varies from one cubic foot per second for every fifty acres of land irrigated in Idaho, to a second foot for every eighty acres in North Dakota.

Nevada adopts the acre foot as the unit and provides that the minimum duty may be three acre feet for each acre per year. In the Northwest Territories of Canada, the minimum duty of water is placed at one cubic foot per second, flowing continuously during the irrigation season for each 150 acres of land. I give in tabular form the rates adopted by the U. S. Reclamation service under its several projects:

Minidoka project, in Idaho, 4 acre feet per year, measured at point of diversion;
Williston project, North Dakota, 2 acre feet per annum;
North Platte project, Nebraska and Wyoming, one and one-half acre feet for each 100 acres;
Carlsbad project, New Mexico, three acre feet, per acre per year;
Cimarron project, Oklahoma, two acre feet, per acre per year;
Belle Fourche project, South Dakota, two acre feet, per acre, per year;

Truckee-Carson project, Nevada, two and one-half acre feet per annum;

Strawberry Valley project, Utah, one cubic feet per second at the headgate for every 80 acres.

Yuma project, California and Arizona, five and five-tenths acre feet per annum for each acre;

Uncompahgre Valley project, Colorado, one cubic feet per second at the headgate for every 80 acres.

While the statutes fix the minimum duty of water, there is nothing in the law to prevent the Courts fixing a higher duty. In Alberta and Saskatchewan, Canada, is found a higher duty fixed than in any of our states a continuous flow of one cubic foot per second for every 150 acres of land for the period of 53 days between May 1st and September 30th.

The Courts have attempted without marked success to determine where the water for a consumer from a ditch should be measured. From some points of view it would seem most equitable to measure it at the head of the farmer's lateral, but this would throw all of the loss from seepage and evaporation upon the ditch company. To measure it at the river where it enters the company's main ditch would render it impossible to deliver to each consumer at the head of his lateral the full amount of water to which he believes himself entitled. In a mutual ditch, that is a ditch owned and operated by those who use the water, as a ditch taken out by a group of farmers to water their own lands, the water is usually measured at the river and the users divide the loss among them. In Idaho the statute says that the water shall be measured at the point of diversion from the stream. It is believed that this will discourage waste by the individual user, for if the full measure were required to be delivered at his lateral he would take little pains to prevent loss in the main ditch. In most of the states the statutes are silent on this question and it is left for the Courts to settle according to the equities of each case.

The question of rotation is one which has come to receive more attention as the supply of water is more largely drawn upon. By rotation I mean the right among consumers from the same source of supply, during times of scarcity, to take turns in the using of the whole supply for definite periods of time. This method often permits of the irrigation of all the crops under a ditch when if each person claimed the share of the water running in the ditch to which he is rightly entitled, none would have sufficient head of water to do any effective work. Primarily, among those using from the same ditch or lateral, it is merely a matter of contract with which the law will not interfere. When, however, the question is in relation to several takers from the same public source of supply questions may and do arise which require the action of the Courts to prevent trespassing upon the rights of appropriators not concerned in the rotation.

The statute of Wyoming provides, "To bring about a more economical use of the available water supply, it shall be lawful for water users owning lands to which are attached water rights to rotate in the use of the supply to which they may be collectively entitled; or a single water user, having lands to which water rights of a different priority attach, may, in like manner, rotate in use, when such rotation can be made without injury to lands enjoying an earlier priority." In Oregon the Court said, "We see no reason why, even in cases involving prior and subsequent appropriations of water, the courts cannot require the appropriators to alternate in the use of the water. An appropriator has the right to use only so much as his needs require, and at the time his needs require. And if these are satisfied by a use of the whole flow every other day, or every alternate week, he ought not to be heard to complain."

The same rule has been announced in all of the Western states.

OUTLINE OF LECTURE 11

What constitutes waste. Most economical method of use must be adopted.

May be compelled to repair works to prevent waste.

Statutes to prevent waste. Two systems compared.

Conclusions from the discussion as to waste.

Rights of way over public lands.

Various United States Statutes.

LECTURE 11

What constitutes waste of water, and the necessity of avoiding waste is a subject which has occupied the attention of the courts and as the demand for water becomes more pressing the subject assumes relatively greater importance.

In all irrigation methods which have been adopted there is a greater or less loss of water which cannot be avoided; such loss is not considered as waste. Where, however, the irrigator takes from the public source of supply more water than he can use economically, or allows it to escape after having run across his ground, it is evident that he is depriving others of the service of the water without gain to himself. There is a further loss from the waste of water in that such water is apt to collect in low places and reduce otherwise good land into a swamp or alkali patch. An appropriator cannot claim the right to apply water to his ground in the easiest and least expensive manner to himself. If by the adoption of more careful, even though more expensive methods, he can avoid the loss of water, he is under obligation to adopt such methods. In a country where many wish to use water the supply of which is relatively limited there may be said to exist a constant state of near famine, and one can no more justify a waste of the precious fluid than he could justify the waste of food in a beleaguered city. Of course no exact definition can be given of what constitutes waste; the question is one which must be determined by the facts in each particular case. We shall get some assistance from the expressions of the Courts in the different states. In Colorado the Court in one case observed, "If the parties have no immediate or present need of the full quantity of water which they may divert

and use they cannot waste it, but it is their duty to allow such portion as they have no immediate need for to remain in the natural stream, or, if diverted, to return such surplus again into the stream, where, unless they intend to recapture it, it becomes subject to diversion by the various ditches in accordance with their numerous priorities."

A party whose ditch allows of excessive seepage or leak, or whose flumes are not made tight, or any of whose works are not fitted to carry water without waste may be compelled to put them in proper shape. When it has been ascertained what is the proper duty of water in a given region a person can be prevented using water beyond this amount; to apply more water than is needed to insure a crop entails a double loss, it shortens the crop and wastes the water. The Idaho Court held that water users should not be allowed an excessive quantity of water to compensate for and counterbalance their neglect or indolence in the preparation of their lands for the successful and economical application of the water. Other states have held the same way. In Oregon, the Court said "Extravagant or wasteful application, even to a useful project, or the employment of water in a non-beneficial enterprise, is not included in the term 'use' as contemplated by the law of waters. Then, too, when even an appropriator is not using the water it is available for the use of others." Some of the states have adopted criminal statutes making it a misdemeanor to wilfully waste any of the waters of any stream. There are two classes of statutes relative to the use of water, each having for its object to prevent waste. First those which allow the acquirements of rights to fixed quantities of water, and, second, those which allow rights for certain specified tracts of land. The first induces the appropriator to put all of his water to a beneficial use, for he knows that what is not so used must be left in the stream. The second being limited to the amount of land to which he can ap-

ply the water will be tempted to irrigate in excess of the needs of his ground in order to hold his entire appropriation.

From this whole discussion of the subject of waste we may gather certain valuable conclusions. We have seen that an appropriator cannot acquire title to the water which he appropriates. He acquires only the right to use such an amount of water as he is able to put to a beneficial use. The mere fact that he has claimed a certain amount and constructed a ditch to carry it and even withdrawn it from the stream, gives him no right to the excess beyond his needs. That excess belongs to the public. Further, though he may at times have use for the amount of his appropriation, the water does not belong to him and he has no right to withdraw it from the stream at times when he does not need to use it on his crops.

I wish to call your attention to the subject of rights of way over public lands. When we consider a ditch with the water which it carries, we are to observe that we are dealing with three distinct properties; there is the property right in the use of the water, then we have the ditch which is an object of ownership, a true property which can be made the subject of sale, and finally, the right of way, a property right in the nature of an easement, when the ditch is on the lands of another. It is this last species of property to which I invite your attention at this time. Where the appropriator has land abutting upon the stream from which he wishes to take water and has no occasion to carry his ditch off from his own land the question of ownership and right of way cannot, of course, arise. We have seen that from the time of the entry of the early miners of California upon the public lands of the United States and their construction of ditches on such land to the adoption of the statute of 1866 by Congress those who had so entered upon the public domain were mere trespassers. We have seen also how Congress ratified the use made of the public lands for ditches and provided for the

acquiring of right of way thereafter. The Act passed in 1870 provides, "All patents granted, or pre-emptions or homesteads allowed, shall be subject to any vested and accrued water rights, or rights to ditches and reservoirs used in connection with such water rights (referring to a previous section) as may have been acquired under or recognized by the preceding section."

There has been some difference of opinion as to the full meaning of this section. Some have held that it simply explains the terms of the provisions of the Act of 1866 without adding anything to its provisions. Others take the ground that whereas the Act of 1866 had for its object to recognize the rights of those already on the public domain, the Act of 1870 intends to go further and recognize not only those which had vested at the time the Act of 1870 was passed, but also those which might vest and accrue in the future and prior to the granting of any patent. The latter view is the one adopted by the Land Department, and all patents from the government which have been issued since the Act of 1870 went into effect contain the following reservation, "Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, and rights to ditches, and reservoirs used in connection with such water rights as may be recognized and acknowledged by the local customs, laws and decisions of Courts."

Before an appropriator can avail himself of the privilege of a right of way across the public domain for his ditch, he must acquire a right to the water by a full compliance with the law of the state in which he is located, for it is to be remembered that the general government leaves to the states the entire control of methods of appropriation. When, however, and only when he has secured a right to the water, he is given a right of way across the public domain without having to resort to condemnation proceedings to secure it. In Idaho the Court held that where a citizen settles upon a part of the un-

surveyed lands of the United States, and has peaceable possession of the same, and constructs a ditch across it, he secures the right of way for his ditch, although such land, when afterwards surveyed, is found to be in the grant of a railway company. The owner of an irrigation ditch constructed on public land never has a title in fee to it, but only a conditional easement, which is lost on his ceasing to use the land for his ditch.

In a case before it the Court of Wyoming said, "There are numerous decisions to the effect that if an appropriator is first in time with reference to possession and use as compared with the date of an entry made, the rights of the entryman are junior and inferior." The right to acquire a right of way for ditches and canals across the public land cannot be disputed by one who is merely in possession of the land across which the ditch runs and who takes no steps to perfect his title to the land. Where the inception of the title to the land is prior to the inception of that of the right of way over the land, the absolute title to the land vests in the patentee and is subject to no burden or easement for the right of way.

The next law enacted by Congress upon the subject of rights of way on the public domain was section one of an Act of August 30, 1890, which reads, "***** That in all patents for land hereafter taken up under any of the land laws of the United States or on entries or claims validated by this Act west of the one hundredth meridian, it shall be expressed that there is reserved from the lands in said patent described a right of way thereon for ditches or canals constructed by the authority of the United States."

This wording, "constructed by the authority of the United States," appears here for the first time in the law and seems to look forward twelve years to the passage of an Act for the reclamation of lands by the United States. Up to 1890 the general government had made no move towards government activity in the reclamation of

lands in the Arid Region. A full discussion of the meaning and application of this law will be given when we reach the detailed consideration of the National Reclamation Act.

In an Act of March 3, 1891, Congress provides as follows, "Section 18. That the right of way through the public lands and reservations of the United States is hereby granted to any canal or ditch company formed for the purpose of irrigation and duly organized under the laws of any state or territory which shall have filed, or may hereafter file, with the Secretary of the Interior a copy of its articles of incorporation, and due proof of its organization under the same, to the extent of the ground occupied by the water of the reservoir, and of the canal and its laterals, and fifty feet on each side of the marginal limits thereof; also, the right to take from the public lands adjacent to the canal or ditch, material, earth, and stone necessary for the construction of such canal or ditch; provided, that no such right of way shall be so located as to interfere with the proper occupation by the government of any such reservation and all maps of location shall be subject to the approval of the department of the government having jurisdiction of such reservation, and the privilege herein granted shall not be construed to interfere with the control of waters for irrigation and for other purposes under the authority of the respective states and territories.

"Section 19. That any canal or ditch company desiring to secure the benefits of this Act shall, within twelve months after the location of ten miles of its canal, if the same be upon surveyed lands, and if upon unsurveyed lands, within twelve months after the survey thereof by the United States, file with the register of the land office for the district where such land is located a map of its ditch or canal and reservoir; and upon the approval thereof by the Secretary of the Interior, the same shall be noted upon the plats in said office, and thereafter

all such lands over which such rights of way shall pass shall be disposed of subject to such right of way. Whenever any person or corporation in the construction of any canal, ditch, or reservoir, injures or damages the possession of any settler on the public domain, the party committing such injury or damage shall be liable to the party injured for such injury or damage.

"Section 20. That the provisions of this Act shall apply to all canals, ditches, or reservoirs heretofore or hereafter constructed, whether constructed by corporations, individuals, or associations of individuals, on the filing the certificates and maps herein provided for. If such ditch, canal, or reservoir has been or shall be constructed by an individual or association of individuals, it shall be sufficient for such individual or association of individuals to file with the Secretary of the Interior, and with the register of the land office where said land is located, a map of the line of such canal, ditch, or reservoir, as in the case of a corporation, with the name of the individual owner or owners thereof, together with the articles of association, if any there be. Plats heretofore filed shall have the benefits of this Act from the date of their filing as though filed under it; provided, that if any section of said canal or ditch shall not be completed within five years after the location of said section, all rights herein granted shall be forfeited, as to any uncompleted section of said ditch, canal, or reservoir, to the extent that the same is not completed at the date of the forfeiture.

"Section 21. That nothing in this Act shall authorize such canal or ditch company to occupy such right of way except for the purpose of said canal or ditch, and then only so far as may be necessary for the construction, maintenance, and care of said canal or ditch."

A careful reading of these sections of the Act of 1891 discloses numerous peculiarities. Section 18 states that the provisions of the Act apply to companies "formed for

the purposes of irrigation." The Secretary of the Interior and the Courts have held that a company formed for the purpose of developing power or for other purposes than for irrigation cannot avail itself of this statute. It will be noticed, also, that this Act nowhere attempts to repeal the Acts of 1866 and 1870; hence these Acts are still in full force, but they provide that a right of way may be acquired by merely putting oneself in the proper attitude of an appropriator of water under the laws of the state and then simply entering upon the public domain and constructing his ditch or other works. Those early Acts require no filing of maps, papers and proofs of local organization. The Secretary of the Interior in construing the Act of 1891 says (and it is to be remembered that the construction, as well as the rules and regulations of the department have the force of law), "It is contended that while the Act of 1866 did not require, preliminary to the acquirement of rights thereunder, that formal claims should be placed on record in the Land Department, yet the Act of March 3, 1891, does require such record to be made, in that Section 20 thereof provides that its provisions shall apply to all canals, ditches, or reservoirs heretofore or hereafter constructed. This contention, continues the secretary, is not sound. While the clause above quoted from Section 20 of the Act of March 3, 1891, extends the benefits of that Act to all canals, ditches, or reservoirs theretofore constructed upon the public domain, among which is the right to file in that behalf with the Land Department a map of such canal, ditch, or reservoir, and secure the approval of the Secretary of the Interior therefore, yet the rights of the claimants under the Act of 1866 are in no wise dependent upon said Act or upon an approval of such maps. The purpose of the Act of March 3, 1891, in respect to this was primarily to extend to such claimants the right to place their claims of record with the Land Department for their better protection. It may be, too, that it enlarged the privi-

leges conferred by the Act of 1866, in that it gave the use of fifty feet of land on each side of the marginal limits on canals, ditches, and reservoirs—a privilege not carried by the Act of 1866—but, however this may be, it surely did not operate to make the continued enjoyment of rights conferred by the Act of 1866 dependent upon the filing of maps provided for in the Act of 1891.”

It will be seen, therefore, that a person wishing to secure right of way on the public domain may proceed under the law of 1866 and not file maps and other papers as required by the law of 1891, but it is doubtless much better to proceed under the latter law, for by so doing he secures a record in the land office of his claim which will be a protection against persons subsequently obtaining title from the government to the land over which his right of way extends. There is a further benefit accruing from the law of 1891, the privilege of extending the right of way 50 feet out on both sides of the line of the ditch or reservoir.

It has been seen that the law of 1891 was limited in its benefits to projects which had in view the irrigation of lands. This did not come up to the full meaning of the Arid Land doctrine of appropriation, which recognizes the right to appropriate water for any beneficial use. Congress, in 1895 and 1896, passed Acts to remedy this defect. Section 1 of the Act of 1895 reads, Section 1: “That the Secretary of the Interior be, and hereby is, authorized and empowered, under general regulations to be fixed by him, to permit the use of the right of way through the public lands of the United States, not within the limits of any park, forest, military or Indian reservation for tramroads, canals, or reservoirs to the extent of the ground occupied by the waters of the canals and reservoirs and fifty feet on each side of the marginal limits thereof; or fifty feet on each side of the center line of the tramroad, by any citizen or association of citizens of the United States engaged in the business of mining or

quarrying or of cutting timber and manufacturing lumber."

This Act was amended in 1898 by adding to the section just cited the words, "for the purpose of furnishing water for domestic, public, and other beneficial uses." Before this last amendment, however, Congress, in 1896, amended the Act of 1895 by adding a second section which reads, "Section 2. That the Secretary of the Interior be, and hereby is, authorized and empowered, under general regulations to be fixed by him, to permit the use of the right of way to the extent of twenty-five feet, together with the use of necessary ground, not exceeding forty acres, upon the public land and forest reserves of the United States, by any citizen or association of citizens of the United States, for the purpose of generating, manufacturing, or distributing electric power."

It is important to notice that, whereas the earlier Acts of Congress had operated as a grant to give the appropriator an indefeasible right of way so long as he continued to use the land for the purpose for which it was granted, these later Acts instead of making such a grant, simply say that the Secretary of the Interior is authorized to permit the use of the land for a right of way. The Secretary of the Interior construed the Act of 1895 to mean that the right to use the land permitted by this Act would terminate whenever the government should dispose of the title to the land. To illustrate, a party goes upon the public land and secures a permit under the Act of 1895 to run a ditch across the public domain. He constructs his ditch and enjoys the use of the right of way for a greater or less time, until the government sells the land, to a homesteader, or any one else, when his right terminates and the purchaser of the land takes it free from the burden of such ditch or reservoir or whatever the work may be. Thus the party who has been using the right of way finds himself under the necessity of dealing with the purchaser of the land to continue the use of

the right of way. This condition was remedied by the amendment of the law of 1891 by the Act of 1898, a portion of which I have given above. Section 2 of this Act of 1898 reads, "Section 2. That the rights of way for ditches, canals, or reservoirs heretofore or hereafter approved under the provisions of sections 18, 19, 20 and 22 (these were given in the early part of this lecture) of the Act of 1891, may be used for purposes of a public nature, and said rights of way may be used for purposes of water transportation, for domestic purposes, or for the development of power, and subsidiary to the main purpose of irrigation."

OUTLINE OF LECTURE 12

Conditions of right to construct reservoirs for stock water.

Right of way over private lands.

Definition of right of way. Distinguish between the ditch and the right of way for a ditch.

How acquire right of way over the lands of another—three ways.

No limit to the kind of contracts a man may make within the law concerning his own property.

What necessary to create a permanent easement.

Right of way by license. Limitations of such right.

How a revocable license may become a permanent easement.

Licensee makes improvements at his own risk.

License cannot be assigned—why?

Rule that he who is silent when conscience bids him speak, shall not be heard to speak when conscience requires that he remain silent.

Public ditch enterprises. Right to tax for construction.

LECUURE 12

Continuing the subject of the last lecture.

It will be seen by reference to the Act of 1891 that that Act uses the words "the right of way is hereby granted." It follows that when the Act of 1898 was declared to be amendatory to the Act of 1891 and nowhere attempts to remove the word granted from the original Act it cannot be held that the right is merely a permission to use. Therefore, the law as it now stands must be that if a person secures a right of way on public lands, he gets a qualified fee to them as far as the needs of his right of way, the government retaining a reversionary interest in the land so occupied, that is if the party ceases to use the right of way for the purposes for which it was given, the land goes back to the government for the use of whoever may have subsequently to the acquiring the right of way, purchased the land from the government. And any person settling upon a tract of public land, as homesteader or otherwise, after a right of way has attached to said land, takes it subject to such right of way, and, as Congress has made no provision for deducting from the government subdivision of land the acres taken out by the right of way, the settler must take the land for its full measure, that is if you file upon a quarter section of government land as a homestead, and there has been a prior filing upon that quarter section for right of way for a ditch and reservoir which occupies any number of acres, you will be charged by the government for the full 160 acres of land.

As the procedure, that is the method to be pursued, in acquiring rights of way, is governed by rules and regulations which are issued from the office of the Secretary of the Interior, and as these rules are constantly subject

to change, I do not consider it worth our while at this time to go into the subject of such procedure. Should you ever be in position to desire to secure such rights of way, your safest and best way will be to apply to the nearest land office for a copy of the rules and regulations governing such matters.

You will notice that the Act which we have been discussing provides that "upon approval" of the application by the secretary, and not until then, that "thereafter all such lands over which such right of way shall pass shall be disposed of subject to such right of way. Under the state laws, the right to the use of water under an appropriation dates back to the inception of the work. Here, however, between the time the appropriator goes upon the public land to make his survey and begin work and the time his application is approved by the secretary, some person may file upon the land as a homestead or otherwise, and there will be no dating back of the time of the approval of the application. The entryman will take the land free from such filing for right of way.

Though many years passed thereafter before the government undertook the work of reclamation of arid lands by the passage of the National Reclamation Act, Congress had begun to look forward to such action when it passed the Act of 1888 and several amendments thereto up to the year 1897. In the Act of 1888 we find this language. "For the purpose of investigating the extent to which the arid region of the United States can be redeemed by irrigation, and the segregation of irrigable lands in such region and for the selection of sites for reservoirs and other hydraulic works necessary for the storage and utilization of water for irrigation * * * * * all lands which may hereafter be designated or selected by the United States surveys for sites for reservoirs, ditches, or canals for irrigation purposes * * * are from this time henceforth hereby reserved from sale as the property of the United States."

In 1889 an Act was passed providing for surveys contemplated by the Act of 1888.

In 1891 an Act was passed authorizing the President to declare by proclamation the establishment of national forest reservations and their limits. Questions soon arose concerning the acquirement of right of way across such reservations.

The Act of March 3, 1891, which we have discussed, provides for right of way over reservations of the United States, and an Act of 1905 grants such rights. We have, therefore, two Acts of Congress under which rights of way for ditches, canals, and reservoirs may be acquired over national forests, and as the terms of these Acts are different and different rights are granted under them, different sets of rules and regulations were required under each Act. Under the Act of 1891, whenever a right of way is applied for through a national forest, the applicant must enter into such stipulation and execute such bond as the forest service may require for the protection of such national forest.

The Act of 1905 is entitled an Act to provide for the transfer of forest reserves from the Department of the Interior to the Department of Agriculture. Section four of this Act reads, "Section 4. That rights of way for the construction and maintenance of dams, reservoirs, water plants, ditches, flumes, pipes, tunnels and canals, within and across the forest reserves of the United States, are hereby granted to citizens and corporations of the United States for municipal or mining purposes, and for the purpose of milling and the reduction of ores, during the period of their beneficial use, under such rules and regulations as may be prescribed by the Secretary of the Interior, and subject to the laws of the state or territory in which said reserves are respectively situated." Though the expression "public domain" is used in the Act of 1866, the land department has said that it does not refer to forest or other reserves, but only to what are strictly

known as "public lands" of the United States. And it is held by the Land Department that as far as the public reserves, such as forest, Indian, and others are concerned, the Acts of 1891 and 1905 repealed the Act of 1866; this being the law, applications for rights of way over forest and other reserves must be made under the Acts of 1891 and 1905. While, as just remarked, it is true that applications for permanent rights of way must be filed in the proper local land office of the department of the Interior, this does not in any way prevent or interfere with the securing of permits for right of way for ditches, reservoirs or canals from the Department of Agriculture. And though a person has secured a permit from the latter department, he may still proceed to apply for a permanent grant from the Secretary of the Interior. The theory of the department is that a mere permit or license to use during the pleasure of the government may be granted by the Department of Agriculture or head of other department having jurisdiction, but where any portion of the title of the government is to be disposed of no department has the power to act excepting the Department of the Interior. Among the regulations concerning permits to use the lands in the national forests is regulation 19 which reads, " * * * * the following acts within the national forests are forbidden; the building among other things of ditches, dams, canals, pipe-lines, flumes, tunnels, or reservoirs, without a permit or in violation of the terms of the permit except as otherwise allowed by law, and except upon patented land or upon a valid claim consistent with the purposes for which it was initiated."

When it is desired to obtain permission over lands wholly within the boundaries of a national forest reserve, an application should be prepared in accordance with the instructions of the Department of Agriculture, and filed with the officer in charge of such national forest. If the application involves rights and privileges upon public lands partly within and partly without a national forest,

separate applications must be prepared, and the one affecting the lands within the forest reserve filed with the forest officer and the other filed in the local land office.

An Act of January 13, 1897, provides that any person, live stock company, or transportation company engaged in the breeding, grazing, driving, or transporting of live stock, may construct reservoirs upon unoccupied lands of the United States, not mineral, or otherwise reserved, for the purpose of furnishing water for such live stock, and shall have control of such reservoir, under regulations prescribed by the Secretary of the Interior, and the lands upon which the same is constructed, not exceeding 160 acres, so long as such reservoir is maintained for such purpose: Provided, that such reservoir shall not be fenced and shall be open to the free use of any person desiring to water animals of any kind. Two years are given after filing the declaratory statement to complete the reservoir, otherwise the statement will be subject to cancellation.

To this point our discussion of the methods of securing rights of way over public lands has been confined to the lands of the general government, but such rights of way are not limited to these lands, for such rights of way may be acquired over state lands. Where the right of way was acquired while the land was part of the public domain, before the grant of the land was made to the state, the state, like an individual, takes the grant subject to such previously acquired rights. The statutes of the various states provide for the recognition of such rights, and in all conveyances of state land the statutes usually provide for the reservation of such vested rights of way. The statutes of most Western states go further and provide for the granting, over lands owned by the states, upon certain conditions, either with or without compensation, of rights of way for the purposes of ditches, canals, or reservoirs to be used in connection with appropriations for irrigation.

We have still to consider the acquiring of right of way over private lands, and here it may be well to give a definition of a right of way. I find no better definition than that expressed in the language of the Court of Oregon, "A right of way is an easement of perpetual use, a charge or burden upon the land of one for the benefit of another." Remember to keep distinct in your mind the right of way for a ditch, and the ditch itself. While the former is an easement in land, the latter is land.

In an early decision the Court of Colorado went so far as to say that lands in Colorado are held in subordination to the dominant rights of appropriators, who must necessarily pass over them to obtain a supply of water to irrigate their own lands, and that such rights could be acquired without condemnation proceedings. But this would authorize the taking of the property of another without due compensation which is in violation of the constitution of the United States, and the rule in Colorado was subsequently very much modified.

Right of way over the lands of another may be acquired by right of eminent domain, by prescription, or by contract with the owner of the land. The first two of these methods will require rather extended treatment and will be left until later; the last, the method by contract, may be briefly discussed here. When lands have once passed into private ownership, no other person has a right to construct a ditch across them without the owner's consent, unless the right has been acquired by some legal process. Even a person who has no title to the land but is in lawful possession may resist the entry upon the land for the construction of a ditch. A mere trespass can never serve to acquire an easement upon the lands of another, unless the trespass has continued so long as to ripen into a prescription. Settlers upon the public lands of the United States, though their title is but prospective and depends upon their performance of many conditions

precedent, are protected from trespass by others for the purpose of constructing ditches.

As the law leaves to every man not laboring under some legal disability the right to make his own contracts concerning his own property, there is no limit, so long as the general law is not violated, to the kind of contracts a man may make for rights of way to others across his lands. A man may sell his land and reserve to himself or to another the right of way for a ditch across the land sold. But the words in a deed, "reserving across said land a right of way" will not give the right to construct ditches or canals for carrying water across such lands. The sale of a ditch may carry with it a water right as an appurtenance to the same, unless the water right should be specifically reserved. A ditch and a water right may be sold separate and apart from each other. A ditch may be mortgaged and the mortgage foreclosed; it may be levied upon and sold under execution. It is subject to mechanic's liens for labor done or material furnished in its construction.

The law relative to the holding of government land under homestead, pre-emption, or other rights, provides that any entryman of land must make and file before the proper land office an affidavit that he has "not directly or indirectly made, and will not make, any agreement or contract in any way or manner, with any person or persons, corporation, or syndicate whatsoever, by which the title which he might acquire from the government of the United States, should inure, in whole or in part, to the benefit of any person, except himself. "It also provides that the entryman, when he applies for patent, must make an affidavit that no part of such land has been alienated, except as provided in section 2288. Section 2288 of the statutes of the United States, just referred to, reads, "any bona fide settler under the pre-emption, homestead, or other settlement law, shall have the right to transfer, by warranty against his own acts, any portion of his claim

for church, cemetery, or school purposes, or for the right of way for railroads, canals, reservoirs, or ditches for irrigation or drainage across it; and the transfer for such public purposes shall in no way vitiate the right to complete and perfect title to his claim." This last section, therefore, operates as an exception to the rule laid down in the section just preceding it. Such Acts of Congress must not be taken to mean any more than they express, for example, it will be noticed that in this section 2288 certain rights of way are permitted to be granted "for ditches for irrigation or drainage across it," but in a case where a right of way was given by an entryman for a flume to carry water across his claim for power purposes, it was held that the agreement was void and could not be enforced.

The right of way being an easement over the land, the general law of contracts applies for securing rights of way for ditches, canals, or reservoirs. To become a permanent easement, the right of way must be acquired by a deed or as the result of an executed contract founded upon a good and sufficient consideration. Ordinarily an easement in land can be created only by a writing under seal, still it may be created by adverse user, by estoppel, or by the performance of a parole agreement. The acquirement of a permanent right of way for ditches and canals over the lands of another by grant or contract comes within the statute of frauds, it being an interest in real estate, and therefore should be in writing.

A deed is valid and grants a right of way, even where the exact boundaries are not described where the ditch or canal is to run. The California Court says in one case, "It is settled law that where an unlocated right of way is granted or reserved, the owner of the servient estate may in the first instance designate a reasonable way, and if he fails to do so, the owner of the dominant estate may designate it." Where the party to whom the right is granted goes upon the land described, selects a strip, and

constructs his work over the same, the grant then becomes fixed and certain, and any attempt to change, enlarge or vary it without the consent of the owner of the land is a trespass.

A person may acquire a right of way over the lands of another for a ditch or canal by license. This is a permission to do a certain act or series of acts upon another's land without acquiring any estate in the lands. A license may be given verbally or in writing, notwithstanding the statute of frauds. It may, generally, be evoked at the will of the person giving it, even though a consideration was paid for it; and at all events it terminates at the death of the person granting it. This, I have said, is true generally, but we shall see that what was originally a revocable license may by the acts of the parties become a right to a permanent easement. If the party to whom the license is given for a consideration, makes large investments for the enjoyment of the privilege, the licensor may be estopped from revoking it. Where a party grants, without consideration, a temporary right of way over his lands for a ditch, no definite limitation as to time being expressed, it amounts only to a license, and may be revoked at any time, even though the grantee of the privilege has expended money upon it. The licensee is presumed, as a matter of law, to know that a license may be revoked at the pleasure of the licensor; and if he expends money upon his entry upon the land, he does so at his own peril. Such a license is founded upon personal confidence, and therefore cannot be assigned. If the owner of the land sells the land, the license is revoked at once. The right secured by a mere license is not such an interest in land that it will descend to the heirs of the licensee.

I said above that what was at first a mere license may become an easement. There is a difference of opinion among Courts as to this question, but on the ground that a statute intended to prevent fraud will not be allowed

to be used to commit a fraud I believe the better rule is as I have stated, where the facts are such as to warrant the interference of a Court of Equity. The California Court has expressed itself as follows, "The general rule, no doubt, is that one who rests his claim to an easement upon a verbal contract alone, unexecuted and unaccompanied by any other facts, has no rights thereto which he can enforce. But there are many cases where a mere parole license, which has been executed, and where investments have been made upon the faith of it, has been held irrevocable." The theory of this decision is that it would countenance a fraud upon the part of the licensor if he were allowed, after the expenditure of money by the licensee, upon the faith of the continuance of the license to cut short by revocation the natural terms of its continuance and that under the doctrine of estoppel the licensor will not be allowed to do this. Hence, some authorities hold that, in cases of this nature, the licensor will be held to have conveyed an easement, and that, too, where no consideration was passed at the giving of the license.

The Court of Colorado said, in a case where the ditch running through the city of Fort Collins was in litigation, "He that remains silent when conscience requires him to speak shall not be heard to speak when conscience requires him to remain silent. The defendant was silent when the circumstances should have impelled it to speak, if its rights were invaded. The policy of the law will not now permit it to appropriate unto itself an alleged additional right of way, which it might have possessed by the exercise of a proper diligence, when plaintiffs, acting in good faith, and believing that they, and not it, were the owners of and entitled to its use, have expended large sums of money in placing permanent improvements thereon."

The necessity for irrigation in this Western country, and for that purpose the conducting of the waters from

the natural streams to the place of use is so great that the construction of ditches or canals by a state or by some subdivision of the state authorized by the legislature is a matter of such public nature that the taxing power of the state may be exercised for their accomplishment. When a ditch or system of irrigation is so constructed it becomes the property of the public, and each person of the public, within the range of the operation of the ditch or system, and entitled to water, may demand the use of the ditch or system in conducting that water, as far as practicable, toward his place of use. Such canals are public property much as a public road is public property. Every land owner under the canal, whether he uses water or not, is required to contribute his part towards the maintenance and preservation of the canal. One may acquire by contract the right to use a private ditch to convey water to his lands, and if a consideration is paid for such right it cannot be revoked, at the pleasure of the grantor. The right to use another person's ditch may be acquired also by prescription. The rights to the use of a private ditch may also be acquired by the acts of the owner, amounting to an estoppel, as where the owner of an irrigating ditch upon the public lands of the United States without objection, saw others enlarge and repair his ditch, increase its capacity, take up lands in its vicinity which could only be irrigated through his ditch, and make improvements on their land on the faith of obtaining water through his ditch to the extent of its increased capacity, was held to be estopped to deny the right of such parties to so use such ditch.

OUTLINE OF LECTURE 13

Easement gives right to enter to construct and repair, but must not exceed original rights.

Rule when one ditch crosses another.

Easement on public lands. Right to remove obstructions.

Duty to remove obstructions. How easement is to be used.

Duty as to encroaching cattle, etc.

How under case in Colorado?

Statute of frauds—Its purpose.

Statute of Frauds in Colorado.

Meaning of "Estate in Lands" and "Interest in Lands."

Water right is property of the highest order, and is subject of sale.

Water, ditch, and right of way are three distinct properties.

Uncompleted rights may be sold. Rights and duties of purchaser in such a case.

How if one company purchases the rights of another in Colorado. Study the illustration.

Water rights are real estate and are subject to the provisions of the statute of frauds.

Sale of real estate must be in writing, acknowledged, and recorded; therefore, sale of water rights requires the same formalities.

The sale is good between the parties without writing, but does not bind subsequent appropriators. Why? Study illustration.

Where interest in water is represented by certificates of stock.

Lack of record in early days.

Necessity for record; how provided for in statutes.

Four exceptions to the rule requiring sale in writing.

First Exception—When by parole, executed, and for consideration.

Second—Appropriator takes as actual appropriation by diversion.

Third—Settler's improvements on public lands.

Fourth—Sold with land as appurtenant.

Reason for first exception.

Reason for second exception.

Reason for third exception.

LECTURE 13

Where a permanent easement has once been acquired by a user of water over the lands of another, however it may have been acquired, the owner of such easement has the right to enter the premises and construct the ditch or other works, for which the easement was acquired, and for the purpose of keeping them in repair. This right to enter the lands of a person from whom the easement comes for the purpose of construction and repair is incidental to the easement itself, for where a man grants a thing he is held to have intended to grant all that was reasonably necessary for its enjoyment. Where there would be any other material injury to the land by a change from the original plans, a party having the easement is held to a strict adherence to such plans. He must not make his ditch wider, or deeper or change its course, but must follow exactly the plans with reference to which the easement was granted. Any departure from such plans makes him liable to the owner of the land for damages. The only proper way would be to acquire a new and additional right of way by some method known to the law.

Where a ditch crosses another ditch the rule of law is that the last comer must bear all of the expense of the crossing and must put and maintain the first comer in as good condition as he found him. So, if I have an easement for a ditch across your land, even you cannot cross my ditch with another ditch without putting me as you found me for the enjoyment of my right.

An appropriator of the waters of a public stream flowing through the public domain acquires an easement over the lands through which the stream flows for the flow of the water to his point of diversion, to the ex-

tent that no one has the right to meddle with the stream in such a way as to prevent the water coming down to his point of diversion on the stream. And even after lands have become private property such an appropriator has the right to go upon them and remove obstructions from the stream, so as to permit the water to come down to him. If from natural causes the stream becomes obstructed, the owner of the land where such obstruction forms, is under no duty to clear the stream so as to allow the water to go down to the early appropriator; under such circumstances, he, the appropriator, must clear away the obstruction. In so clearing the stream, the appropriator must do it with the least possible damage or annoyance to the owner of the land. As said by the Court in an Idaho case, "There can be no doubt of his right to employ such means as may be necessary and essential to keep this channel clear and in repair for the purpose of carrying the necessary quantity of water to meet the demands of his appropriation. This right, however, must be exercised with due diligence and with proper respect for the right of other appropriators, and also of riparian proprietors." But if the obstructions are placed in the stream by the landowner, it is his duty to remove them. The right to the easement and the right to maintain the ditch thereon does not give the owner of the easement the right to use the soil adjoining it for the purpose of repairing the ditch. The owner of the easement must so use his privilege as not to interfere with the ordinary use of the adjoining land by the land owner, and the land owner must not, even by the ordinary use of the land, work any injury to the ditch or to the full enjoyment of the easement. The owner of an easement not only has the right to enter upon the lands over which his easement extends to repair his works, but the law goes further and says that it is his duty to keep his works in repair both that he may enjoy his right to use the water and that he may work no injury to others. On the principle

that every man has the right to enjoy the natural and ordinary use of his own property, and that if, while lawfully in such use, without negligence or malice on his part an unavoidable loss occurs to his neighbor, he cannot be made to pay damages, it has been held that where cattle of the land owner injured the ditch on an easement across his land, it is the duty of the holder of the easement to make repairs. The rule that the duty of making repairs is upon the owner of the ditch is even enforced where injuries result to the users of the water from the ditch from impurities from the cattle of the land owner. In Idaho the Court holds that the fact that a municipality uses the water, which runs through a ditch which is constructed over the lands of another, does not of itself entitle the municipality to maintain an action against the owner of the land to restrain him from allowing his cattle to feed and graze in the field along the banks of the ditch, and to cross over it or wade through the waters, but that in such case the primary duty of fencing or protecting the ditch from impurities rests upon the owner of the easement and not upon the owner of the land.

But in Colorado it has been held by the Court that where the ditch owner negligently allowed the ditch to enlarge so that the stock of one using the land for pasture, by permission of the land owner, was lost by miring therein, the ditch owner was not liable to the owner of the stock for such loss.

In order that portions of the discussion of the subject of sale and purchase of water rights and rights of way, which I propose to take up at this time, may be more readily understood, I introduce here an explanation of what is known among lawyers and law-makers as the statute of frauds.

This is a statute passed by the English Parliament in the reign of Charles the Second, under the title of "An Act for the Prevention of Frauds and Perjuries." The statute has many provisions, but we are interested in but

two of them. Prior to the passage of the statute, it had been customary and it was perfectly legal to make many forms of contract without reducing them to writing, that is, oral contracts. As many of these contracts related to title to real estate, and to subjects which, coming into court, would require the most strict proof of the terms of the contract, and as such proof, especially if many years had passed since it was made, was difficult to procure, whence arose much chance for fraud and perjury, it was thought advisable to declare that certain contracts dealing with highly important interests should be required to be in writing to be enforceable.

So important have the provisions of this old statute been considered by legislators of the later day that all of the states of our country have re-enacted the most important of them and we find them in our statute books. Instead, therefore, of reciting here the provisions in their original form as they appear in the statute of Charles, I give the sections of our own statute with which we are interested.

Section 2657 of the Revised Statutes of Colorado reads, "Every conveyance or charge of or upon any estate or interest in lands, containing any provision for the revocation, determination or altering of such estate or interest, or any part thereof, at the will of the grantor, shall be void as against subsequent purchasers from such grantor for a valuable consideration, of any estate or interest so liable to be revoked, determined or altered by such grantor, by virtue of the power reserved or expressed in such prior conveyance or charge.

2660. No estate or interest in lands, other than leases for a term not exceeding one year, * * * * * shall hereafter be created, granted, assigned, surrendered or declared, unless by act or operation of law, or by deed or conveyance in writing, subscribed by the party creating, granting, assigning, surrendering or declaring the

same, or by his lawful agent, thereunto authorized by writing.

2666, declares that every agreement that by its terms is not to be performed within one year from the making thereof, shall be void unless it, or some memorandum of it, be in writing, and subscribed by the party charged therewith.

Certain terms used above in the statute are defined by other sections thereof.

The term "estate in lands" and "interest in lands" is construed to embrace every estate and interest, freehold and chattel, legal and equitable, present and future, vested and contingent in lands. Conveyances means every instrument in writing, except a last will and testament, whatever may be its form and by whatever name it may be known in the law, by which any estate or interest in lands is created, assigned or surrendered.

A water right, or the right to the use of a certain amount of water for a beneficial purpose, acquired by appropriation is a property right of the highest order, and is, therefore, subject to sale and transfer the same as any other property. Being an independent property right, it may be sold and transferred separate and apart from the land upon which it was originally intended to be used; it may, in fact, be sold independent of any land or interest in land. The whole of the right may be sold or a part may be sold, and the remainder retained, and the purchaser may use it for an entirely different purpose than that for which it was at first appropriated. The Federal Court has said, "water rights can be transferred like other property."

The water right may be sold separate and apart from the ditch through which it has been customary to use it. An individual or a company owning a water right and also a ditch may sell one or the other and retain the unsold factor. After the sale of the ditch in such a case, the water right may be used through or by means of en-

tirely different works. I have made these various statements for the primary purpose of impressing upon you the entirely independent character of the property right in the water right; to get you to thinking of this mere right to use a thing as being something that can be bought and sold. The Court of Wyoming has used this language, "The water in the stream is not his property, but his right to use that water based upon his prior appropriation, for beneficial purposes, is a property right, and as such is capable of transfer."

It is not only true that a person may, after having perfected his right by diversion and use, sell the same, but after he has commenced to do those things which the law requires to lead up to a perfect right, and before he has completed them, he may sell his uncompleted rights to another who may go on to completion by use and the rights of the purchaser will date back to the time of the first act by his grantor. The purchaser in this last case is, of course, held to the same diligence as would have been required of the original party. It is held by the Court in Colorado that if one canal company purchases the rights from another canal company, it must succeed to the charter rights of the grantor and prosecute the enterprise under the same franchise, so that the continuation of the work will practically be the same enterprise. To make this clear, suppose the Valley Ditch Company is incorporated and commences the series of acts necessary to perfect a right to water from the Poudre River, and before it has completed the acts of appropriation it sells its uncompleted rights to the Plains Ditch Company, another corporation. Now, if the Plains Ditch Co. proceeds to complete the acts necessary to perfect the water right so purchased, as the Plains Ditch Co., it will not come in with a priority dating back to the inception of the work of the Valley Co., but if, at the time it bought the water right from the Valley Co. it had also purchased the stock of the Valley Co. and had proceeded under

the corporate powers of the Valley Co. to complete the appropriation, then, and in that case, it would date its rights back to the time of the inception of the project by the Valley Co. But in order that an incomplete proposition of this nature may be sold, the original party must have proceeded from the start with diligence and with a real intention to complete his enterprise; he must have something to sell. A case decided by the Utah Court hits this proposition squarely. "The mere making of a survey and posting of a notice neither conferred nor initiated such rights. They therefore had no such rights, interest, or property as were subject of sale, assignment, or transfer. All that they had to sell or assign was their knowledge and information in respect of the canyon and the river, and of the feasibility of an appropriation and diversion of unappropriated waters of the river for power and irrigation purposes, and the field notes, maps, and drawings of the survey." We are to remember that not only is it true that water rights are property, but also that in most of the states it is held that they are a species of real property, that is, that they are real estate, not personal property. This being true, when a sale is made of water rights all the formalities required in the sale of real estate must be observed to avoid the inhibition of the statute of frauds. You cannot sell land by a bill of sale, nor is a sale of land by a parole, that is, a verbal agreement valid. The location of the title to real estate is a matter of so much importance that it must be evidenced by a deed in writing, and, under our laws, this writing must be acknowledged before a notary or other officer and recorded in some public office, in order that all men may know in whom the title to the land rests. As said, water rights being looked upon as a species of real estate, the sale of them must be accompanied by a written deed, acknowledged and recorded, to be good against all the world. It is true that, just as a sale of land is good as between the parties to the sale even if

these formalities are not all observed, so as between the parties a parole sale of water right may be held valid, but such a sale is not notice to the world and appropriators subsequent to the appropriator who claims the water right so sold are not bound to recognize the priority of the right, unless it can be shown that they had actual notice of the sale. The importance of this principle may be made plain by an example. Suppose A makes an appropriation of water and sells by parole agreements to B. B continues for some years to use the right. C comes upon the stream without knowledge of the previous existence or acts of such a man as A. C proceeds to appropriate water from the stream. B claims a right prior to him by virtue of the earlier appropriation of A. C may well say to B, "I know nothing of A, or of any appropriation by him; show me that you deraigne title from him or any such prior appropriator." A written deed in such a case would be very convenient to have. Proof of B's claim might be utterly impossible without such a deed. You see the application of the principle of the statute of frauds here and the necessity of such a statute. Where a party holds stock in a corporation and the holding of this stock entitles him to the use of a certain share or interest of a water right held by the corporation the sale of the stock of the company may carry with it the right to such use and the books of the corporation are a public record of the sale. The Colorado Court says, "In this state it is regarded as an independent right, which may be the subject of sale and conveyance, but a technical transfer is essential to vest in the transferee a title to the water." In Idaho it is held to be real estate "and must be conveyed as real estate; and it cannot be conveyed by the mere handing over of a permit to appropriate water to a would-be purchaser." California says, "Any contract for the conveyance of water rights must be in writing, the right is an interest in real estate, and, therefore, within the statute of frauds." We shall find

that here as in many places the rigid rule of the law is sometimes modified by the court in equity in order to prevent a rule that was intended to prevent fraud becoming the instrument by which fraud is committed.

For many years after the beginning of the practice of appropriating of water for beneficial use, from our Western streams, little attention was given to the manner of preserving a record of priority of right. The fact that a man was found using water was accepted as sufficient evidence of his right to use it. But as the original appropriators passed away, and as the increased demand upon the supply in the stream led to a struggle between claimants the legislators of the different states commenced to formulate statutes requiring that transfers of water rights be executed in a more formal manner, and that deeds of transfers be recorded; also, as we shall see, statutes were passed requiring early appropriators to come into court and furnish proof of their rights and get a record in the form of a court decree establishing the nature and amount of such rights, and now the statutes of most states require that all claims for water be recorded in some public office. However, a case in Colorado while holding to the rule that the use of water for irrigation is real estate, and that the proper method of conveying title is by deed, recognized the fact that since many of the early water rights acquired by appropriation have not passed by deed from the original appropriators, held that parole proof of the possession and use of the water right is *prima facie* evidence of title. The effect of this would be to throw upon the person who disputed such right the burden of disproving it.

There are four principal exceptions to the rule that a transfer of a water right must be in writing:

First, where the transfer was made by a parole executed contract for a consideration;

Second, where the purchaser takes the right as an actual appropriation by diversion;

Third, where the water right is considered as an improvement of a settler on the public lands, who relinquished his claim before patent and sold his improvements;

Fourth, where the right is sold with land as an appurtenance thereto, and without being specifically mentioned in the deed.

It will be desirable to take time to discuss each of these exceptions at some length.

First exception: If there has been made a contract for the sale of the right, for a consideration and the contract has been wholly or in part performed, even though the contract was not in writing, it is held not to fall within the statute of frauds; the reason for this is not far to seek, for if this were not the rule, a seller of a right after having received the consideration for which he sold, and having seen the purchaser expend sums of money on the work, might revoke the contract on the plea that the contract was not in accordance with the requirement of the statute, and thus what was intended to be a guard against fraud would be made the instrument of fraud. The Court of Oregon says on this subject, "a parole sale of lands and appurtenant water rights, for a consideration, and a surrender of possession thereof to the purchaser, creates an equitable estate in the water rights which a court of equity is bound to protect." In order, however, to rely upon contracts of this kind, it is to be kept in mind that they must be for a consideration, and they must have been acted upon in whole or in part.

A case in Colorado holds that open, continuous use of water from an irrigation canal by an owner of adjacent land, through lateral ditches, is possession and gives constructive notice of his rights to a purchaser of the canal.

An independent parole transfer of water rights may be good as between the parties to the agreement, pro-

vided the grantee enters into the possession and use of the water, but as to third parties, in case there should not be sufficient water in the stream for all, the transfer by parole may be void. This is especially true as to the rights of subsequent appropriators, the inception of whose rights are subsequent to the inception of the right of the grantor in a parole sale, and prior to the date of the transfer.

The weight of authority throughout the Western states seems to be on this subject, that a parole or verbal sale of a water right, accompanied by actual possession and use for some beneficial purpose is valid as between the parties. But in such a case that the grantee does not acquire the grantor's right to priority, but that he acquires a new right as an appropriator by actual diversion, dating only from the date of the transfer and such actual possession, which is, in effect, the same as though the grantee had upon that date consummated the appropriation himself. This is the same as saying that in such sales the right of the purchaser will not relate back to the inception of his grantor's title. The purchaser in this case is no better by having bought an early appropriation; he might just as well have gone on the stream and have appropriated the water and taken his turn as to priority after all who had appropriated before the date of his purchase. This is the second of the exceptions of the rule that a sale of a water right must be by deed, and whether such a purchase is of any value to the purchaser depends upon the size of the stream and the number and size of the appropriations which have been made upon it prior to the transfer.

Passing on to the third exception noted above, where the sale of the water right is sold with other improvements of a settler who has relinquished his claim upon the government land. The laws of the United States permits a settler to sell his improvements made upon government land in case he relinquishes his claim on the

land to the government. Upon the theory that the right to use water, such right having been acquired by actual appropriation and use, is an improvement, just as fences and buildings are improvements, a parole sale or transfer of such improvement is held to be valid and to include the water rights, and to vest in the purchaser of the improvements the grantor's priority to the appropriation.

I find the Court of Oregon using these words. "But a mere squatter upon public lands may, even by parole, transfer his claim and interest, whatever it may be in this respect, to another, and the rights of the subsequent purchaser and of his successors in interest, if asserted under the doctrine of prior appropriation, relate back to the date of the first appropriation with whom there may be a privity of estate." And the Montana Court goes further, "a settler in possession of government land for which he has appropriated a water right, may transfer such land and water right by parole assignment, so that the transferee becomes his successor in interest in the water right, even though the transfer was **without consideration.**" The point in the Montana decision is that the water right was an appurtenant to the possessory right to the land, thus illustrating the fourth exception previously noted.

OUTLINE OF LECTURE 14

Meaning of appurtenant.

Reserved in a deed and excepted from a deed—get this distinction.

If appurtenant, it is excepted out of a deed; if not appurtenant, it is reserved.

Rule when one who has appropriated water for sale sells the system.

Principal as an agent or trustee must not profit from his trust.

Easements and rights of way are real estate. Purchaser of land buys subject to rights of holder of permanent easement.

Fourth exception to rule requiring written deed:

How question of appurtenance is to be decided.

Question of whether water goes with land when deed is silent.

Effect of Mortgage.

How decided in case in Colorado.

Inseparably appurtenant—Get what this means.

General rule on this subject.

Water right cannot be inseparably appurtenant to the land.

Are ditches and canals which carry water to land appurtenant to it?

Ditches for homesteads.

How the various rights are treated in a mortgage.

How about property acquired after a mortgage is given?

LECTURE 14

A thing is said in law to be appurtenant to another thing when it forms a part of it or is necessary to its enjoyment. A house and other buildings on land are said to be appurtenant to the land. In some states it has been attempted to make water, when once used on land, appurtenant to that land, so that when a deed conveys the described land and its appurtenances, it would convey the water right without further description or specification. In most of the states of the Arid West, water rights are not held to be appurtenant to the land, and, even in those states which have tried to adopt the other rule, the courts have rejected the doctrine. It is important, therefore, to know when and by what formalities water rights are sold.

In the drawing of deeds to land there is often used the expression, after describing the land to be sold, "reserving, however, some particular privilege in connection with the land." In the case, for instance, of a father deeding his land to his children and reserving to himself the rents and profits of the land during his own life. Here the whole title passes to the children when the deed is executed and delivered, but they cannot take the rents and profits until the father dies.

If the deed reads describing a piece of land to be conveyed and adds the words "excepting an acre out of the northeast corner thereof, the title to all but the reserved acre passes to the purchaser and the title to that acre remains in the seller. Technically, therefore, care is necessary in drawing deeds to use the word reserving, or the word excepting in the sense which the parties really wish to express. This distinction will be

found to be of interest in the sale of water rights and ditches.

If a water right is not to be included in the sale of a tract of land, it may be excepted out of the terms of conveyance, if an appurtenant to the land, or reserved if not considered as an appurtenant, and the water right so reserved or excepted may be taken to some other land for use. If a person sells a water right without making any reservation as to a right to use it for any purpose, he has not after the sale, any right to use it for any purpose whatever. In Montana, the Court held that where the general government had granted to the state one section of land of a former military reservation, to be selected "so as to embrace the buildings and improvements thereon," it did not grant the right to the use of the water of a stream from which the government had taken water for its own use, but that the water was subject to appropriation. A canal may be sold and the water right that has been used in connection with it may be reserved. In Colorado a tract of land may be sold and a portion of the water right reserved. An interesting point was decided in California, which may be gathered from the remarks of the Court, "One who appropriates water for sale, rental, or distribution cannot, when he sells the system, reserve any part of the waters for irrigation of his private lands, unless he had through the same canal and ditches made a private appropriation for use on such lands, in which case his reservation must be limited to such private appropriation." The theory upon which this is not allowed is that the appropriation of the waters was made for distribution of the waters to members of the public, and the appropriator as the agent of such public use had no power whatsoever to reserve to himself for his private purposes any part of the water. Of course, when it is attempted to make a reservation in a deed there must be something to reserve. The Colorado Court touches this point in the decision of the case

between the Windsor Reservoir Co. vs. Lake Supply Co., where the Court says, "Where the grantee's acceptance of a deed containing in terms a reservation to the grantor of a priority appropriation of water for a certain reservoir, when, in fact, no priority of appropriation had been secured, there being nothing to reserve, the acceptance of the deed did not estop the grantee to claim an appropriation of its own for such reservoir."

When once acquired, easements and rights of way, together with the ditches or other works constructed over them, are property rights, and may be sold and transferred the same as any other real property, therefore they must be conveyed by a written instrument the same as other real estate.

When land over which there is a permanent easement for a ditch is sold, the purchaser takes the land subject to such rights of way and their necessary use, and the open possession and use is sufficient notice to the purchaser. But a bona fide purchaser of land without knowledge, or actual or constructive notice, of the existence of an easement takes the title to the land without the burden of the easement.

You will recall that the fourth exception to the rule that the transfer of a water right must be by deed or other written instrument as is the case where the water right passes to the purchaser with a sale of land as an appurtenance without being specifically mentioned in the deed to the land. Appurtenances, as already said, are things which belong to another principal thing, though it may not have belonged to the principal thing from immemorial time. Now water rights may or may not be appurtenant to the land upon which they have been used, and, therefore, may or may not pass with the deed to the land. It is important that we have some rule by which to determine when a water right is appurtenant to the land. Whether or not it is will depend upon the intention of the parties as indicated, either by the terms of

the deed itself, or if that is not clear as to the intent, then upon other facts surrounding the particular case. You will keep in mind that where the deed is clear in specifying that it intends to convey the water right, or where the water right is clearly reserved or excepted from the deed the question of whether it is to be treated as appurtenant to the land cannot arise; it is only where the deed is silent or is ambiguous on this point that we can be called upon to settle the question. So, the Colorado Court is found saying that where a deed to a certain tract of land specifically described the water rights granted, the purchaser did not take by implication any additional water rights. It was held in Idaho that where a landowner conveys a tract of land lying under his canal and susceptible of irrigation, and includes in the conveyance a grant of the "free and perpetual use of water" from the grantor's canal sufficient to irrigate the land conveyed, the grant of such free and perpetual water right did not place any obligation upon the grantor or his successors to perpetually bear and pay the expense and cost of maintaining and protecting the canal and water right and delivering the water to the consumer. What the purchaser intended or what he understood when he bought the land has nothing to do in the settlement of the question of the passage of the title to the water right. He received a deed to the land; he had it in his power to know the contents of the deed, and if he accepted it omitting any reference to water rights he is bound by his contract, if, of course, he is unable to show that fraud entered into the transaction. It was held in California in a case, where the deed conveyed a certain water right from a certain stream, and it did not appear that the grantor owned any interest in any other ditch, and where the water right was used in connection with the ditch for the irrigation of the land conveyed, that the conveyance of the ditch was a conveyance of the right to the use of the water appropriated and con-

ducted through the ditch. The Colorado Court held that a deed, conveying land and water rights in which the water rights were described as "one-half interest in a certain ditch," conveyed a one-half interest in the ditch and the water rights, and reserved a one-half interest in both, whether the entire water before the conveyance was used on the land or not.

Where a tract of land is conveyed and at the time of the transfer the grantor is the owner of a water right, and ditches, and a right of way for the ditch, used in connection with the land, and the deed is absolutely silent about water rights or ditches, the Courts hold that it depends upon the intent of the grantor as to whether or not the rights were conveyed with the land. The intention is a question of fact to be proved by the circumstances surrounding the case. The person claiming that the water rights were so conveyed must prove it, but he need only prove that the grantor at the time of the transfer owned the water rights claimed, and that they are necessary to the full enjoyment of the land conveyed; this raises a presumption that the rights are appurtenant to the land, then it becomes the duty of the seller to show that it was not intended that the rights should pass with the land, and that they did not so pass.

I have said that the question depends upon the facts of the case and the circumstances surrounding the transaction. One of these circumstances of considerable importance is often the price paid for the land. In the West where land without water is seldom of a value exceeding twenty to twenty-five dollars per acre, if a purchaser has paid what would be a reasonable price for land with water, the claimant may show that fact in evidence, and it will have great weight.

In a California case, the Court said, "The use of these waters to the extent at least to which they had been previously employed may have been, and it is fair to presume was, the chief, perhaps only, inducement to

the purchase of the land. To authorize judicially the diversion and material reduction of the waters would be a violation of the principle that the purchasers took with all apparent benefits and easements belonging to their purchase."

A principle which has been treated as fundamental in the law by the Courts in the East as well as in the Western part of our country is that where one sells a house or farm every right will pass to the purchaser which is necessary to the complete use and enjoyment of the property conveyed, unless expressly reserved in the deed itself.

There is a phrase which in this state and in nearly all of the states in this Union is always present in a deed to real estate, to-wit: "together with all and singular the appurtenances thereunto belonging." In a deed in Colorado where this phrase was used, the Court held that it was shown by the uncontroverted evidence in the case that the parties intended to convey the water right. The Oregon Court uses these words. "The right to the use of a ditch and water appropriated for irrigation purposes essential to the land for which it was appropriated and without which it would be practically valueless passes by a deed to such land as 'appurtenances', "

A thing or a right may be an appurtenant to a tract of land and still not be inseparably appurtenant, that is, while the water right which I own and use with a certain piece of land will pass as appurtenant to the land if I own both at the time of the sale of the land, I have the right to sell the water right away from the land and continue to hold the land. A case arose in California where a party in selling a piece of land attempted to make the water right which went with it inseparably appurtenant to it, by inserting in the deed that the water rights "shall be deemed and treated as appurtenant to and as a part and for the benefit of such lands." But the Court said that a grantor selling a tract of land with a water right

cannot limit the right of his grantee to sell the water right separate and apart from the land by the use of such expressions.

Quoting from Mr. Kinney, I may say that the general rule upon this subject is that, when a tract of land is transferred and the grantor at the time of the transfer was the owner of a water right which had been used in connection with the land, and the deed is entirely silent upon the subject of the water rights, the title to these rights passes to the grantee, the same as though they had been expressly mentioned in the deed; provided, however, that to pass the title to a water right by a deed of the land, it must in fact, have been made appurtenant to the land. This rule is based upon the well known principle of law that, when a person grants a thing, he by implication grants whatever is appurtenant and incident to it and necessary to its beneficial enjoyment. The Wyoming Court says, "in order for the water right or any portion thereof, not to pass with the deed transferring the land, there must be some limitation or reservation specifically expressed in the deed. The Colorado Court while not adopting another rule as to appurtenances, says that the right to the use of water for irrigation is a right not so inseparably connected with the land that it may not be separated therefrom. This Court said in another case that a water right may be appurtenant to land so as to pass by a conveyance of the land with its appurtenances, if incident and necessary to the beneficial enjoyment of the land without which its value would be greatly disproportionate to the value paid, which, with other circumstances, indicates a clear intention of the parties to transfer the water with the land. But the question still remains, when is a water right appurtenant to the land upon which it has been used. No more certain answer seems to be possible to this question than to say that it is always a question of fact, and depends entirely upon the circumstances surrounding

each particular case. It appears, however, to be well settled throughout the arid region that a water right used in connection with a certain tract of land for its irrigation, where necessary to the beneficial enjoyment of the land, together with the ditch, canal or other works necessary to conduct the water to the place of use, become appurtenances to the land, provided that they are all owned by the same parties, and the general rule of law is that, in the case of sale of the land, such water rights, unless specifically reserved, in the deed, will pass to the grantee as appurtenances. Subject to the limitations already set forth, it is also the rule that where a person purchases a portion of a tract of land to which an appropriation of water would be held to be appurtenant if the whole tract had been sold, will take as appurtenant that part of the appropriation that the part of the tract sold is of the whole tract.

We have seen that a water right is not an inseparable appurtenant to land, that is, that it cannot be so attached in title to the title to the land as to prohibit the owner of both water right and land selling either the one or the other and retaining the other. Attempts have been made in several statutes in different states to make the water right so inseparable, but whenever cases in these states involving this question have reached the Court of last resort, the Court has refused to uphold the statute. In Idaho the law reads, "All waters of the states, when flowing in their natural channels, including the waters of all natural springs, etc., are declared to be the property of the state, * * * * and the rights to the use of any waters of the state for a beneficial purpose are recognized and confirmed, and the right to the use * * * * shall not be considered as being a property right in itself, but such right shall become the complement of, or one of the appurtenances of, the land or other thing to which, through necessity said water is applied." If it were possible to choose language which would fix the

character of inseparability to the appurtenance, it would seem that this statute should produce that effect. When a case fairly presenting the question reached the Supreme Court of the state, the language of the Court was, "If a thing really is property, the legislature, by saying it shall not be considered as such cannot in fact deprive it of the character and quality which constitutes it property. I do not conceive of any well founded reason or principle of law that forbids the owner of a tract of land from separating and segregating an appurtenance therefrom, and disposing of it with the same freedom of sale as he may enjoy with reference to any other property right. It is a fundamental principle that every citizen has the inherent right to dispose of all his acquisitions." And the Court held the party might, in spite of the prohibition of the statute, sell the land and keep the water, or sell the water and keep the land, or that he might withdraw the water from the land upon which he had been accustomed to use it and use it on other lands. Wyoming, Arizona and every other state where similar statutes have been passed has had the same ruling from its Court.

Our discussion of this question of appurtenances would not be complete without some consideration of when ditches and canals which have been used to convey water to lands may be considered as appurtenant to such lands. It may be stated as the rule that where a ditch, canal, or other works are used to divert and conduct the water to the place of use, and where they are constructed over a permanent easement, or right of way, a sale of land where the water is used and for which the appropriation was made, will, in the absence of any express reservation to the contrary, pass to the grantee, under the principles already explained.

Ditches and canals constructed for the irrigation of land occupied as a homestead without which the land

would be of little value, and the water flowing through them, are treated as appurtenant to the land, as a part of the homestead and are exempt from execution for debts contracted prior to the issuing of the patent.

We come to the question, how the different properties, the water rights, the easements, the rights of way, the ditches and other works may be alienated by mortgage or deed of trust. As these are all recognized as property, they may each be put up as security for the payment of a loan, that is, they may be mortgaged.

They need not all be included in the mortgage, either the water right, the ditch, the right of way, or some other work used in connection with these may be mortgaged and the remainder not so included. If the party putting up the security pays his debt he secures a release of the mortgage and stands in relation to the property exactly as before the mortgage was given; but in case the debt is not paid and the mortgage is foreclosed the title passes to the purchaser at the foreclosure sale. The only question that could arise with which we are interested here is what, if anything, would the purchaser at such sale take that is not mentioned specifically in the mortgage. The rule is the same as when the owner makes a direct sale; he would take all that is necessary for the reasonable enjoyment of that which is specifically mentioned in the mortgage. If the mortgage describes the water right and is silent about the right of way the right of way would be included by implication if the water right would be useless without it.

But suppose a person mortgages a tract of land and after so doing acquires an appropriation of water for use on that land, and foreclosure follows; will the purchaser at the foreclosure sale take such appropriation? The Courts are disposed to treat the water right in such a case as a fixture attached to the land, as a house built after the mortgage was given, would be, and to say that upon foreclosure the water right would go to the pur-

chaser. The Supreme Court of the United States held that a clause in a mortgage which subjects subsequently acquired property to the lien of the mortgage, is a valid clause, and that such a mortgage, "As against the mortgagor and subsequent encumbrances, attaches itself to after-acquired property as fast as it comes into existence, or as fast as the work is completed."

OUTLINE OF LECTURE 15

Duty of purchaser of irrigation company's rights, at mortgage sale.

Property subject to lien. How much does lien cover?

Water rights may be leased with the land, but not without the land—Why?

This does not apply to companies organized to lease water.

How in times of scarcity? Right to loan water.

Title by prescription: Meaning of the term. Legal fiction.

Relation of the prescriptive period to the statute of limitations.

No prescription against the government.

Conditions under which owner of water right may lose it by prescription.

Ditch and water right must be considered separately.

Permission from owner, prevents prescription.

Meaning of the terms adverse possession and use.

To make adverse possession there must be present five element—What are they?

Possession must be actual, open, notorious and exclusive.

Get what each of these words means.

Open and notorious.

Second, use must be hostile at all times.

Third, under color of right. Owner must have knowledge or means of knowledge.

LECTURE 15

If an irrigation company enters into contracts to furnish water to consumers and then mortgages its property, and the mortgage is subsequently foreclosed, the purchaser at the mortgage sale is bound by the contracts so made by the company and must furnish the water under them.

As water rights, ditches, rights of way and other irrigation works are property, they are subject to the lien of mechanics and material men for labor done and material furnished in connection with their construction, and when judgment has been had in a lien case the sheriff may sell the property to make the amount of the judgment. In California it is held that where a ditch is sold under such a judgment the water right used in connection with the ditch is appurtenant to the ditch. A mechanic's lien for labor done on a ditch may extend to and include the land for the watering of which the ditch was constructed. The Supreme Court of the United States held that a lien for an irrigation ditch extends to the tract of land necessary to the convenient use of the improvement for the purposes contemplated in its construction and benefited thereby. In a case where the land benefited was a tract of 22,000 acres, the Court held that it attached to the whole tract; the Court said, "To limit the land upon which the lien was given to the strip of land 60 feet wide and 26 miles long, which was actually occupied by the ditch, and exclude the tract which the ditch was constructed to benefit by its continuous operation, would, it seems to us, be to unreasonably circumscribe the meaning of the statute." I have shown that a mortgage may be valid when given to include property acquired after it is executed, and that the mortgage claim

will fasten upon such property as fast as it comes into existence. If, then, a mortgage be given upon a ditch to be constructed, and mechanics furnish labor in the construction, it would seem that the mortgage would cut out the right of the labor lien but here the law recognizes an exception to the general rule and gives the labor lien precedence over the mortgage. The Colorado Court held that, even in the fact of a provision in the contract where it was provided that the contractor waived all rights to mechanics' liens, that this provision did not bind the subcontractors where by law they were entitled to liens. When property is sold upon an execution, water rights, or the works by means of which they are used, do not pass with the sheriff's deed as appurtenant, unless direct levy and sale are made of them. When a tract of land owned by a judgment debtor is exempt from execution on the ground of being his homestead, the necessary water rights used for the irrigation of the land, and the ditches and canals through which the water is carried to the land, are a part and parcel of the homestead and are also exempt from the execution.

Water rights used for the irrigation of a tract of land may be leased with the land, and the lessee will have the same rights to the use of the water as the owner would have. This is a common practice in the Arid West. Another question, however, presents itself when an attempt is made to lease water rights without land. We have seen that a person may sell a water right without selling the land with which it has been used. In such a case he surrenders his priority of right and passes it over to another, and other users on the stream are not affected because it can make no difference to them whether A or B is claiming the right in question. But if a person while retaining the title to the water right, leases it to another, he is doing by indirection what the law forbids to be done directly; he is placing a later comer in the position of priority to, it may be, many earlier comers. Under

the strict construction of the appropriation laws a man can have no water that he can lease. If he has taken more water than he can use, he is trying to hold a quantity which should be left to appropriators subsequent to himself. He does not own the water, and cannot, in the same sense in which he owns his land; he owns only the right to divert from the stream such an amount as he can put to a beneficial use, and the fact that he has water which he can spare for leasing purposes is evidence that he has a surplus beyond what he can lawfully appropriate, with which he is trying to establish another person in a priority, which that person could not acquire for himself. So we find the Courts of Arizona, California, Colorado, Idaho, Oregon, Utah and Wyoming, holding that such a transaction is not permissible. You will not, of course, apply this reasoning to ditch companies organized for the express purpose of leasing water to consumers. A person is allowed under the law of appropriation to acquire a right to the use of such an amount of water as he can put to a beneficial use, and he does not acquire the right to take it from the stream at such times as he has not such use for it. It follows, therefore, that a person cannot when he has no use for his appropriated water, loan it or give to others the right to use it during such times; but there is an exception, or rather an apparent exception, to this rule. In most of the Western states there are statutes especially providing that in times of scarcity, appropriators from a common source of supply may exchange water, or as the term is in some states, loan it, or double up in the use. This consists in the putting together of the several rights and allowing one or several of the users to have it for certain periods of days or hours and then another group for an equal period. This is recognized as of advantage to all as it enables each to get such an irrigating stream as to enable him to get over his land whereas if each should try to irrigate with his own share of the stream none would save his

crop. It is to be remembered that this right can be exercised only when in its exercise the rights of others are not in any manner injured.

We have seen that an appropriator may make almost any kind of a change in the place, manner, and kind of use he makes of his appropriation, so long as he continues to put it to some really beneficial use. It may be said that every right of this nature which may be enjoyed by the original appropriator may be enjoyed also by a person to whom he makes a valid sale of his water right. The purchaser as well as the original owner is limited by the rule that in any change he may make, he must not put other appropriators in any worse position than they were before such change.

The next subject to which I shall invite your attention is that of acquiring title by prescription.

The term prescription has reference to a mode of acquiring title to incorporeal hereditaments by immemorial or long-continued enjoyment. We have shown that a water right, and an easement are incorporeal hereditaments, and this last term has also been defined. Men sometimes get into possession of property of this nature which belongs to another and without objection from the owner continue to use it and treat it as their own for so long a time that it would be impossible, or at least very difficult, to prove that they were not in fact the owners of the property. The law, in order to prevent vexatious suits over the title to such property, under such circumstances, falls back upon a fiction and presumes that at some time in the past the party who has for so long a time enjoyed the use of the property had a grant of it from the owner, and the owner is not permitted to dispute this presumption. But before a person can claim title by prescription there are quite a number of conditions which must be complied with. We will study at some length these conditions and endeavor to make clear

when one may claim title to water rights and easements by prescription.

In England, under the common law, it was said that a person to claim such a title, must have enjoyed the use of the property "during the time whereof the memory of man runneth not to the contrary." In a new country, however, possession can seldom be claimed for so long a time, hence a shorter period of enjoyment has been adopted for the establishment of the right.

Both in England and in the United States a shorter period has been adopted and the prescriptive period is generally fixed at twenty years. In nearly every state in the Union the statute has fixed a period of limitations after the expiration of which the law will presume that the adverse holder of real estate is holding under a grant and will not allow his title to be questioned, which period varies in the different states from five years to ten years, and in most of the Arid Region states this in each state is taken as the prescriptive period for the fixing of title to water rights and easements. The Oregon Court states the matter in these words, "The acquirement of a prescriptive right has come to be measured by the statute of limitations for the recovery of real property, and such is the rule in this state." The Court of Colorado has this to say, "Experience has demonstrated the necessity of placing a limit upon the time within which certain specified actions could be brought. The peace and good order of society, the opportunities for the commission of frauds, and the difficulty of defending against actions which had accrued many years before they were brought, prompted a policy which resulted in the enactment of a statute of limitations which is now universally held to be one of repose, prescribing a limit of time within which actions must be brought; otherwise they cannot be maintained against parties who see fit to avail themselves of the privilege of the statute." So, we may say that in general it is true that a permanent right to the use of water, or a

water right, may be acquired in the Western states by one who has complied with the essential elements, for the statutory period, which constitutes the adverse user of water amounting to prescription. It makes no difference under what claim the original party was holding, whether by direct appropriation, by purchase, or even by prescription, his right may be lost through the adverse user by another for the proper length of time.

Just as in England, it was held that prescription could not run against the king, so in this country a person cannot acquire title to property belonging to the United States, no matter how long he may have occupied it; that is, prescription does not run against the government. The time necessary to acquire title by appropriation is not definitely fixed, it differs with the size and nature of the enterprise, all that is required is due diligence in the particular case, but to get title by prescription the adverse possession must have been at least for as long a time as the statute of limitations for recovery of land. A person who has regularly acquired a water right by appropriation, who has complied with all of the requirements of the statute regulating appropriations, may lose his right to another if that other has had the continued, open, notorious, exclusive, uninterrupted, and adverse use and enjoyment of the water, under a claim of right for the required period.

During the period necessary for the statute to run the water must be applied to some beneficial use by the one claiming the adverse title. A right acquired by prescription may be lost by prescription, and a water course which was originally an artificial water way, may, by long continued adverse use, be converted into a natural water course, or one which will have fastened upon it such a character, by prescription. No matter how long a person may make use of mere waste water, he cannot acquire a prescriptive right to it so as to compel the continuance of the waste for his benefit. As stated before,

the right to an easement may be acquired by prescription, but to acquire title in this manner the party claiming it must be able to show that he has enjoyed and used the easement continuously, notoriously, under a claim of right with knowledge of the owner and adverse, for the whole statutory period. Water rights and ditch rights, it will be remembered are entirely different kinds of property, or rather are independent of each other, therefore, a prescriptive right to one does not necessarily carry with it the same right to the other. As said by the Montana Court, "If the ditches were actually used for the prescribed period, and the use was characterized by all the attendant circumstances which constitute it adverse, open, exclusive, and under claim of right, title by prescription resulted even though the claimants to the easement never owned water rights, but had to depend for their use of the ditches upon water acquired from year to year from others." If one in the first instance gets the right to use the easement by permission or license from the owner, he cannot acquire a right to the easement by prescription, for one of the conditions of this form of title is that it must be enjoyed in opposition to the will of the owner. From this it follows, also, that a tenant cannot acquire a prescriptive right to the property of his landlord, for his enjoyment of the use of the property commenced in a permission to enter. The test of whether the occupation of the property is such as to base a claim of prescription upon it, is, could the owner at any time during such occupancy have maintained a suit to eject the occupant from the property? If he could the occupancy was adverse, if not, not. I have several times used the expression, adverse possession, adverse use, and before going further it may be well to establish in your minds a clear conception of just what these terms mean in law, in this connection. There are certain essential elements which enter into the meaning of these terms, and which must be present before a right by prescrip-

tion can be claimed. Now, when one man takes a property by prescription there is always another person who is being deprived of that property, and his loss is in the nature of a forfeit. But it is the policy of the law to look with disfavor upon all forfeits. It follows, therefore, that if a person desires to claim title to property by prescription he must be ready to show that all of the elements prescribed by law as necessary to support such a claim are certainly present. There are five of these elements which may be classed as principal, and the absence of any one of them will defeat the attempt to hold by prescription. First, the possession must be actual occupation or use, open and notorious, and exclusive; second, it must be hostile against the rights of the party against whom the right is claimed; third, it must be held under a claim of right, as the property of the claimant; fourth, it must be continuous and uninterrupted for the full period prescribed by the statute of limitations; fifth, during all of this period taxes, if any are assessed against the property claimed, must be paid by the claimant.

It will be necessary to discuss somewhat at large each of these elements in order to show its exact meaning and limitations.

First, then, the possession must be actual, open, notorious and exclusive. If the property claimed is a water right the claimant must have had the actual use of the water under the right, and have applied the water to some beneficial use during the full period of the statute. By use for the full period does not mean every day, but only at such times in each year when such property is generally used. If the right claimed is the right of way for a ditch over the lands of another, or the ditch itself with its right of way, or the right to conduct water through the ditch of another, there must be actual possession, occupation and use of the property for the required period. The use must be open and notorious, and with the knowledge of the one against whom the right is claim-

ed; or the use must have been of such a kind that it will be presumed that the owner had such knowledge.

It must be remembered that the law is not lending itself to an effort to violently take away the property of one person and give it to another. The law proceeds upon the theory that the conduct of the owner of the property has been such that he may be presumed to have intended to allow the other party to have the property.

By open and notorious, it is not meant that the general public shall have such notice, but that a knowledge of the adverse use can be brought home to the person against whom the right is claimed; if he has knowledge that the use is being made, under a claim of right, that is sufficient. The words open and notorious have in this connection the same meaning; they only mean that the use of the property shall not have been secret, or concealed from the owner. If the use was of such an open and unconcealed nature that the owner might have known in the usual course of things it will be presumed that he did know. The use and occupation must be exclusive, that is, it must not at any time during the period have been shared with the owner, for such joint using would interrupt the adverse use of the property by the one claiming by prescription, and we have seen that uninterrupted possession and use is one of the essentials of the claim.

We saw that the second essential named above was that the use must be hostile to the owner, that there must be an actual invasion of his rights. The mere use of a water right, or of a ditch for any length of time would not create a prescription. It must be such use that the owner would have a right to come into court and sue to have it ended; his rights must be infringed upon. It is not sufficient that at some time or times the occupation and use was an invasion of the rights of the owner; such invasion must be continuous so that at any time during the period the owner would have been able to object.

As one Court says, "The claimant must unfurl his flag on the land and must keep it flying, so that the owner may see, if he will, that an enemy has invaded his domain and planted the standard of conquest." If, therefore, there is enough water in the stream to serve all who claim it, the use of any by one party could not be taken as notice to another that he was claiming what belonged to that other. The adverse use must be an actual damage to the owner. The Montana Court expresses the rule in these words, "The use of water does not begin to be adverse as against a prior appropriator until it results in a deprivation to such appropriator, or amounts to such an invasion of his rights as will enable him at any time during the statutory period to maintain an action against the adverse user."

The third element mentioned was that the claim upon which the prescription is based shall be that the claimant held under color of right. The claimant must by word or act set up the claim that he has a right to the use of the property, and it must be shown that the owner knew that he made such a claim. This claim may be made by the verbal assertion from time to time that the property is that of the adverse user, so that it comes to the knowledge of the owner that such a claim is being asserted. Or, the adverse user may post notice that he claims the property as his own, and at the same time continues the use. Or, the claim may be asserted by mere open, continuous, adverse use, of such a kind as to indicate beyond question that the claimant intended to call the property his own. The California Court says that "such claim may be made out by visible acts, without any assertion by word of mouth." If after some years of adverse use the person making such use acknowledges the ownership of the property to be in the other party, it will defeat any subsequent attempt to set up a prescriptive right to the property. This admission may be by offering to lease or purchase the property from the owner, or it may

be by some act or declaration showing that the property is held by permission of the owner.

OUTLINE OF LECTURE 16

Fifth element, possession continuous and uninterrupted.

When the statute begins to run.

Interruption of use breaks the required continuity.

How owner may cause interruption.

Taxes must be paid by adverse claimant.

Limit of extent of prescriptive right.

Eminent Domain—Definition.

The right is always based on public use.

What constitutes a public use. Decided by statute.

Authorities differ.

What one must do who wishes to get right of way by this method.

There must not be two ditches where one will serve all parties.

Statute in Colorado.

Dilemma and the way out of it.

Compensation.

If person condemns right to enlarge another person's ditch he must pay.

Assessment of old owners to pay for extension of ditch.

Condemnation gives only an easement.

Ways to acquire right of way over private property.

LECTURE 16

The fourth element named was that the possession must be continuous and uninterrupted during the whole period of the statute of limitation. We have seen that the notice to the owner of the property that a person is claiming an adverse right in the property may be direct and actual or it may be constructive. The time of adverse use does not begin to run as against the owner until he shall have had such notice, that is to say, if the period during which adverse possession must continue to base upon it a prescription is five years, this five years is counted as beginning when the owner had notice that someone was making an adverse claim. If having used the water right or ditch, or right of way for one or more years, a year is allowed to elapse in which the property is not used by the adverse claimant, this interruption in the use will defeat the prescription. It has been said by some courts that the word uninterrupted as used here is the same in meaning as peaceable. If the owner asserts his title and thus overcomes the presumption that he acquiesced in the possession of the adverse claimant no prescription can be claimed. The owner may cause an interruption of the use in various ways; he may shut the gate at the time the adverse user wishes to use the water, or he may divert the water from the claimant's ditch into his own, but he must do some act to assert his right, mere verbal assertion while the adverse claimant continues the use will not interrupt the running of the statute. An action commenced in court to stop the use by the adverse user is such a declaration of title as will stop the running of the prescriptive period.

The taxes, if any, must be paid by the adverse user. Of course if the original owner continues to pay all taxes

and assessments that are made against the property, this is a sufficient declaration to overcome any presumption that he no longer claimed to own the property.

If, then, at any time you think you have acquired a prescriptive right to property previously held by another, you will be able to determine pretty closely what you will be required to show to establish such a claim.

One thought remains before leaving this subject: it is to be remember that the right acquired by prescription cannot be larger than the right enjoyed during the prescriptive period. If one acquires in this way the right to water fifty head of cattle from a certain water supply, he cannot afterwards claim the right to water 100 head. The title acquired by prescription when once it is perfected, is as complete as though a deed had passed between the parties.

In an early lecture I named among other ways by which title might be acquired, the title by condemnation under the power of eminent domain.

By eminent domain, we mean the right which the government retains over the estates of individuals to appropriate them to the public use. It is the superior right of property subsisting in the sovereignty, by which private property may, in certain cases, be taken, or its use controlled for the public benefit, without regard to the consent of the owner, and even against his wishes.

Keep in mind that the right is based, always, upon a public use and grows out of the principle that where an individual right stands in the way of the enjoyment of a public right, the individual must give way. It does not belong to our subject to attempt anything like a full discussion of this important right. We are interested merely in ascertaining when the right may be exercised in connection with the use of water for irrigation, by whom it may be exercised, and the principle upon which it may be claimed by an individual. The right, primarily, pertains to the states as fully as to the general gov-

ernment, indeed it is a right like that of taxation without which government could scarcely exist.

What constitutes a public use for which rights of way over the lands of another for ditches and canals may be taken under the power of eminent domain, against the consent of the owner of the land? The statutes of all of the states provide when and for what public use the power may be exercised, and it cannot be exercised for any use not enumerated in the statute. The law also sets forth the method of procedure to be followed when it is desired to obtain land under this power. Private property cannot be taken for strictly private use, against the will of the owner, either by eminent domain or by any other method known to the law; this, of course, is exclusive of the taking to satisfy a judgment of court. Authorities in different states differ to some extent as to just what shall be considered such a public use as to justify the taking of property, but it may be said that the various views may be grouped in three classes: First, those which assert that the use must be for all of the public; second, that the use is public when it promotes the interests of a certain portion of the community, although it may not directly benefit the public at large; third, that a certain use by a private individual or corporation for his own or its private enterprise, when it indirectly benefits the public at large, may be called a public use. Local conditions have had much to do with producing this difference of opinion. Those Courts which take the first view named above hold that the property must be taken by official representatives of the public, a person in the position of a public agent, that is, that property is being used for a public purpose only when the public in its organized capacity, as the state or some co-ordinate part of the state as a county or city exercises the power for the benefit of the whole community, as when the county takes a part of a man's farm for a public road, in which case every member of the public has

the right to demand the right to use the property for the purpose for which it was taken. This view will be found to prevail mostly in the older, Eastern states. If this rule was enforced in the Arid West, whoever should condemn a right of way for a ditch through the lands of another, must stand ready to allow any member of the community who could do so, to the extent of the ability to serve them, to run water through the ditch. The second line of authorities take a wider view of the right, and, as noticed, would consider the use a public one if it promotes the interests of a certain portion of the community, although it might not benefit the whole community. But even this is not wide enough to permit of the taking of the land of another for a private ditch. Indeed, the assertion of the right to take property for private use seems to be directly contradictory of the principle which I announced that private property cannot be taken for private use. The two statements are reconciled by the consideration that in a country like the Arid Region of the United States, where the development of the country depends primarily upon the development and application to beneficial use of all of the water, the whole community is interested in every move that is made to further this development, and that, therefore, the taking out of a private ditch for the irrigation of private lands has an element of public service in it which warrants the application of the principle of eminent domain to such a use. One of the earliest cases in which this principle was asserted arose in Utah, and the question presented was whether the legislature had the right to authorize the condemnation of rights of way over private lands for ditches for private use, and the Court held that the legislature had such a right in view of the peculiar conditions found in the Arid Region. The statute in Utah which was attacked in this suit reads as follows, "When any person, corporation, or association desires to convey water for irrigation or for any other beneficial purpose,

and there is a canal or ditch already constructed that can be enlarged to convey the required quantity of water, then such person, corporation, or association, or the owner or owners of the land through which a new canal or ditch would have to be constructed to convey the quantity of water necessary, shall have the right to enlarge said canal or ditch already constructed, by compensating the owner of the canal or ditch to be enlarged, for the damage, if any, caused by said enlargement; provided, that said enlargement shall be done at any time from the 1st day of October to the 1st day of March, or at any other time that may be agreed upon with the owner of said canal or ditch." The Court, in passing upon the validity of this statute, said, "In view of the physical and climatic conditions in this state (Utah), and in the light of the history of the arid West, which shows the marvelous results accomplished by irrigation, to hold that the use of water for irrigation is not in any sense a public use, and thereby place it within the power of a few individuals to place insurmountable barriers in the way of the future welfare and prosperity of the state, would be giving to the term "public use" altogether too strict and narrow interpretation." The case was appealed to the Supreme Court of the United States, which sustained the decision of the State Court.

Where a party wishes to procure a right of way over another person's land, for a ditch, by the power of eminent domain, he must show that there exists a real necessity for his so doing; he will not be allowed to exercise this right just because it is somewhat more convenient for him to cross the lands of the other party than to stay on his own land; and it is equally true that this question of necessity cannot be decided for him by others. No more land may be taken than is really necessary for the use proposed. In Colorado a statute provides, "That no tract or parcel of improved or occupied land in this state shall, without the written consent of the owner thereof,

be subjected to the burden of two or more irrigating ditches constructed for the purpose of conveying water through said property, to lands adjoining or beyond the same, when the same object can feasibly and practicably be attained by uniting and conveying all the water necessary to be conveyed through such property in one ditch.

"Whenever any person or persons find it necessary to convey water for the purpose of irrigation, through the improved or occupied lands of another, he, or they, shall select for the line of such ditch through such property, the shortest and most direct route practicable, upon which said ditch can be constructed with uniform or nearly uniform grade, and discharge the water at a point where it can be conveyed to and used upon land or lands of the person or persons constructing the ditch.

"No person or persons having constructed a private ditch for the purposes and in the manner hereinbefore provided, shall prohibit or prevent any other person or persons from enlarging or using any ditch by him or them constructed in common with him or them, upon payment to him or them of a reasonable proportion of the cost of construction of said ditch." In a case arising under this statute, the Court of Colorado said, "that a right of way could not be condemned through another's ditch, where there are other practicable routes, and especially where such a ditch is not of a uniform grade, and its enlargement would greatly diminish its usefulness."

There has been some question whether a person who has acquired a water right will be allowed to condemn a right of way for a ditch, the thought being that there must be shown to be a necessity for the right of way before it can be condemned, and a person owning no water right has no necessity for the ditch.

It will be seen, however, that the strict application of this reasoning might prevent the development of the country which the right of eminent domain is intended

to foster. To secure an appropriation, as we have seen, it is necessary, in most of the states to convey the water to the land upon which it is to be used and to actually use it. If it were impossible to secure the right of way before the water right is secured a dilemma would be produced the way out of which would be hard to find. But under the rule of appropriation in most of the states the procuring of the right of way and the construction of the ditch must necessarily precede the final consummation of the appropriation. In Oregon a statute provides that when a corporation shall have acquired the right to appropriate water in the manner provided by law it may proceed to condemn lands and premises necessary for right of way for its ditch. The Colorado Court has said it is not pertinent to inquire what the one seeking to condemn lands may be able to accomplish in the way of obtaining water which can be utilized through his proposed ditch. The Court of the State of Washington says it is not necessary to show that a company has acquired the right to take water from a stream, from which it proposes to get its supply, as a prerequisite to its right to condemn land for a right of way. This is the rule also where one seeks to acquire a right of way across government lands, all that is required being that the person claiming the right must first secure the right to the use of the water. We have seen that a person's property can be taken by the exercise of the power of eminent domain only by due process of law. The statutes of the various states of the West all provide for the acquisition of rights of way over the lands of others for ditches to be used for the purpose of irrigation. The statutes also provide for the method of procedure to be observed in acquiring the right, in condemnation cases. Without entering upon the intricacies of legal practice it is sufficient for our purpose to say that due process of law means that the proceeding as laid down by the statute must be strictly complied with. It is not in the prov-

ince of the courts to say that a party shall not carry out an enterprise because the court believes it cannot succeed. This is a matter that must be left to the judgment of the promoters of the enterprise, so says the Court of Colorado.

The constitution of the United States, and the constitution of each state provides that private property shall not be taken without just compensation. It is a settled principle of law that wherever a person's property is taken from him, by condemnation, whether by the government or by someone acting under authority from the government, he shall be paid a just compensation for the property taken. This just compensation, to be made to the owner of the property, is measured by the loss occasioned to him by the appropriation. In some states the payment is limited to the value of the land actually taken; other states allow the addition of damages to the balance of a man's land. Some permit the benefits to the owner of the land arising from the enterprise for which the land is taken to be figured as an offset against the damage done; others adopting the view that a man cannot have benefits thrust upon him without his consent, will not permit the balancing of injuries and benefits to arrive at the amount to be paid. It is the general rule that the assessment of damages at the time of the condemnation of the right of way must be for all future damage as well as for that of the present, that is, that having been once paid for his land taken the owner cannot at a future time demand further payment on the ground that there are elements of damage which were not considered when the land was condemned. Should damage accrue to the remaining portions of one's land after the condemning party has constructed his works, and such damage be the result of careless construction or management of the ditch or other works, compensation may be had for such injury. In determining the

amount of damage the damage to a man's whole farm or other lands is to be considered, not merely the strip of land taken for the right of way.

The proprietor of a ditch constructed for the conducting of water to be used for any purpose, has a property ownership, both in the ditch and the right of way for it, and the using and enlarging of such a ditch without the owner's consent is as much the taking or damaging of private property, within the meaning of the constitution, as would be the appropriating the right of way for the ditch in the first instance; and such a taking or damage against the will of the owner will not be permitted for any purpose except for what may be considered a public use, by due process of law, and only then upon just compensation both to the land owner, through whose land the ditch is enlarged, and to the owner of the ditch and the easement over which it runs. Where the right of way is acquired through the ditch of another, and it is necessary that the ditch be enlarged in order to carry the additional water, the original owner of the ditch cannot be required to perform any work or make any expenditure for the purpose of enlarging his ditch so that it may be used by another, but the original owner and the new comer must join in maintaining the diversion works at the stream.

Where an irrigation company uses a ditch already in operation, and extends a new ditch beyond the terminus of the old one, the owners of the old ditch cannot be assessed for the maintenance of the new portion.

When a person by condemnation proceedings, acquires a right of way over the lands of another, he does not get an absolute ownership of the land so taken, he gets only an easement, he has the right to use the land taken for the purpose for which it is taken for as long a period as desired, but should the use be discontinued the land reverts to the original owner of the property, or to whoever may be holding under him. This has been

held to be true in Colorado where the statute says that the party securing right of way by condemnation, shall be seized in fee.

I have not given any attention to the questions arising out of the attempt to condemn property based upon riparian ownership, for the reason that this whole doctrine of riparian ownership seems doomed to final abandonment from the very necessities of the case, and because while this course of lectures is intended to be general for the whole irrigated section of the West, the limit of time to which I am held forces me to make it somewhat local in its treatment of the subject.

Before leaving the subject of acquiring rights of way it may be well to recapitulate briefly. You will remember, then, that for the use of lands belonging to the general government for any irrigation purpose the Acts of Congress, which we have discussed at length, make ample provision, and that the method of procedure under those Acts is to be found in pamphlets of instructions issued by the department of the interior.

Rights of way may be acquired over the lands of private parties by direct dealing between the parties resulting in a purchase and sale of the premises to be used.

Another way of acquiring such property is by prescription which is based upon a presumed original grant and to be successfully claimed requires that the claimant be able to show that for a period now usually determined by statute he has occupied the property adversely to the owner, openly, notoriously, continuously, without interruption, and under a claim of right.

Again, we may secure a right of way across the lands of another, against his will, by proceeding under the power of eminent domain to condemn the property desired to be taken, and the payment of full compensation for the damage inflicted by the taking.

OUTLINE OF LECTURE 17

How water rights may be lost—Abandonment.

In this matter try to get this thought—Abandonment is always a question of fact and depends upon whether a person who has ceased to use his water has always had the intention to use it again or has actually intended to permanently discontinue the use. Each case as it arises will have to be decided upon the evidence in the particular case.

Use by one co-tenant saves the right of the other from abandonment.

This discussion applies to ditches, rights of way and other easements the same as to water rights.

When leasing is an abandonment. Wasted water is abandoned.

Remember that the **intent** of the owner governs in these cases. Effect of abandonment.

Loss by forfeiture. Difference from abandonment.

Abandonment is voluntary; forfeiture is a penalty.

The pollution of waters.

Statutes of Colorado on this subject.

Subterranean waters classified.

When such waters are subject to laws of appropriation.

LECTURE 17

Having considered the various ways in which water rights and rights of way may be acquired, it remains for us to give our attention to the question of how they may be lost.

In this connection, I shall devote a short discussion to the subject of abandonment.

We are not to expect that a clear statement can be given of just when a person may be said to have abandoned his rights to water or to rights of way, all that can be done is to give the position taken by the Courts of the different Western states on the question and leave you to gather from general statements what your rights would be, and what your position if you should be called upon to defend a right which it was claimed you have abandoned, or what you would be called upon to prove should you seek to show that another person has abandoned his rights.

There can arise no question of a person's abandoning a property to which he holds complete title in fee simple, as is the case with a farm. The fact that such a question may arise concerning water rights and easements, shows that they are not considered as of so high an estate as are lands. While a water right is called real property, it is still a possessory right and depends upon the continuous use of the water, and a failure to comply with this condition subjects the right to loss by abandonment or forfeiture. Riparian right grows out of the theory that the water is a part of the land contiguous to which it flows, and such right cannot be lost by abandonment, but the right to the water under appropriation depends upon continuous application of the water to some beneficial use, and any failure on the part of the appro-

priator to so use it for an unreasonable time, is taken as a declaration that he no longer intends to so use it. To abandon, as the term is used in connection with irrigation, means to desert or forsake a property. It is the relinquishment of a right by the owner, or by any other person, with the intention to forsake or desert the right. "Abandonment, as applied to the doctrine of appropriation of water to a beneficial use, may be defined to be an intentional relinquishment of a right." You will notice that the intent of the owner is a necessary element, therefore, there can be no abandonment without some action of the will and an intent to abandon. The intent need not in all cases to be expressed by words or declarations of the owner, it may be gathered from his conduct. It will be apparent that the question is always one to be determined by a court or a jury from all of the facts in the case. Courts are always slow to take from a person valuable interests in which he has a vested interest without a very clear showing of the evidence to prove that justice demands such action. The Colorado Court has said, "An abandonment is a matter of intention; it is peculiarly within the province of the Court to determine from all the facts and circumstances of each particular case whether abandonment has or has not taken place." So long as the appropriator intends to retain his rights, and manifests that intention by the use of the water, or by his preparation to use it, his rights will remain unimpaired. But he will not be permitted to retain a right which he neither uses nor intends to use.

The Court of the State of Washington puts the matter in this way, "Abandonment, like appropriation, is a question of intent, and to be determined with reference to the conduct of the parties. The intent to abandon and an actual relinquishment must concur, for courts will not lightly decree an abandonment of a property so valuable as that of water in an irrigated region."

An inchoate right is a right that has not taken tangi-

ble, bodily shape; it is an incomplete right. An inchoate right to water, a right that has been properly instituted but not finally consummated, may be abandoned before its final consummation and before a perfect title has vested in the party instituting it. But the Colorado Court holds that as the right has never come into being in such a case there can be no abandonment, since there is as yet nothing to abandon. An abandonment may be express or implied. It is said to be express when the owner expresses an intent to desert or forsake the right, coupled with acts deserting and forsaking the same. Such cases proceeding as they do with the full consent of the owner are not apt to lead to litigation to bring them into court, and such cases are more apt to arise from the abandonment of water rights used for mining purposes than from the abandonment of irrigation rights. It happens, however, at times that the conduct of a party towards a right such as we are considering is such that the reasonable implication is that he no longer intends to use the right, even though he has made no direct statement that he no longer intends to use it. Even in the face of declarations of the party that he still owns the right and has not abandoned it, without any act of possession or user of the right on his part, the Court will declare the right to be abandoned, if the facts and circumstances in the case show that there has been an actual abandonment. The whole theory of the continuation of the right acquired by appropriation is that it must be in the continual possession and use of the claimant; and if it is not so possessed and used, it may be treated as abandoned, and others may successfully lay claim to the right. Where there is a failure to use the right for an unreasonable time, it creates a presumption of an intention to abandon it; but this presumption is not conclusive, it may be overcome by evidence showing the contrary. Where the abandonment is express, there is no lapse of time between the expression of the intent to abandon and the taking

of effect of that expression; the abandonment is complete as soon as the party declares his intention to no longer claim the right. But in case of the implied abandonment time is an important element, it being generally held that before an intent to abandon will be presumed from non-user or other acts of the owner at least as much time must pass during which the conduct is continued as would be necessary to acquire title by prescription. We have seen that an appropriator is given a reasonable time to develop his land and to create a necessity for the whole of his appropriation, even though several years may elapse before he puts his land all under cultivation; all that is required being diligence on his part in the prosecution of his work. In such a case the non-user of a greater or less portion of the appropriation for several years will not be taken as implying the intention to abandon any part of the right. The failure to use the water or the easement for some considerable time will not be taken as indicating an intention to abandon unless other acts of the party serve to show such intention. It is for the Court to say, in view of all the facts surrounding the case, whether the appropriator's conduct may be taken as implying an intention to abandon his right. You will catch the main point in all of this—it is to determine what was the intent of the owner of the right. As the Colorado Court has repeatedly said, “non-user of an appropriation of water is not of itself sufficient to establish abandonment, the intention to abandon must also be present.” This same Court has said in another case, “Even where the rights of the parties have been settled by judicial decree, if they are not used for an unreasonable time, they will be treated as abandoned.”

Water rights, ditches, canals, and other works may be owned by several persons jointly as tenants in common, and when this is the case, the fact that one of the tenants in common does not use his full share of the water, does not imply an abandonment of his right or

of any portion of his right. The use of one co-tenant's right by his co-tenants serves to preserve the common right of all. The principles which I have endeavored to express and illustrate controlling the question of abandonment of water rights apply with full force when the question is of the abandonment of ditches, rights of way, and other easements. Such abandonment may be expressed or implied as in the case of a water right, but always it is the intent of the owner which will control if that intent can be ascertained.

We saw that an attempt to lease a water right without leasing at the same time land upon which it was to be used was not permissible, it follows, therefore, that such a leasing would be an abandonment of the water right. The Oregon Court held in a case where the owners of a mining ditch took water from the ditch for irrigation, that by leasing their right for a term of 99 years they had abandoned their irrigation rights in the ditch.

As a valid appropriation can be made of only so much water as is put to a beneficial use, where an appropriator continually allows a certain portion of his water to go to waste he is held to have abandoned the part of his appropriation so wasted, and others may appropriate it. When discussing the subject of adverse use we saw how a person may lose his right by acquiescence in such use; he in fact abandons the right to another. The right to divert and use water is real property, but the water, after it has been diverted from the natural stream is personal property. We must distinguish, in thinking of these matters, between the abandonment of a water right, and the abandonment of the water itself. One may cease to withdraw the water from the stream, in which case he abandons his water right; or after withdrawing it he may allow it to escape from him without any intention on his part to recapture and use it, in which case he abandons the water. A party in developing a mine may tap an underground stream and

produce a certain flow of water, if he allows this water to flow away without intention of using it, he abandons the water but not a water right. There is another case: After having used his water for irrigation the appropriator may allow it to run back into the stream with no intention at the time to reclaim it; this is an abandonment of the water which may be appropriated by others after its return to the stream. The Colorado Court has said, "After waste waters reach the stream, unless there is an intention of the owner to reclaim them, they become a part of its volume, and inure to the benefit of its users, to be enjoyed in accordance with their numerical priorities." You will remember, of course, that this does not affect the right of a person to turn his water into a stream for the purpose of using the channel of the stream as a part of his system, intending to take the water out again at a point lower down. The distinction lies in the intent at the time the water is allowed to flow into the stream. If at that time he intends to recapture it, there is no abandonment; if he has not such intention at the time, it is abandoned. It will not do to form a resolution to reclaim it after having allowed it to enter the stream, this resolution must be formed and as it were constitute a part of the act of turning the water into the stream.

In the question of abandonment, you will remember, the intent of the owner governs. In Oregon the Court said, "only when the preponderance of the evidence in the case shows that there was actually such a desertion of the right, or such neglect and failure to use the right for an unreasonable time as to warrant the presumption, from all the evidence in the case, that the party charged intended to abandon the right, will the Court find an abandonment." In Colorado, "A single act may be of such character and done in such manner, and under such circumstances, that an intention to abandon may be inferred from it." In Idaho, "Abandonment is a question

of intention, and forfeitures are not favored, and must be clearly established."

The effect of the abandonment of a water right, or the water, or the ditch or other works, or the easement of right of way depends a good deal upon the nature of the right that is abandoned, but in general we may say that the effect of abandonment is that the party loses, absolutely, all title he had to the right. A person cannot abandon a right in favor of some one else, that is, he cannot succeed in placing another person in his position of ownership by his abandonment.

Water rights, rights of way and other properties of the nature of those we have been considering may be lost by forfeiture. This is not to be confounded with abandonment, though the terms are sometimes used interchangeably. An abandonment results as the voluntary act of the party, while a forfeiture is the involuntary or forced loss of the right, caused by the failure of the appropriator or owner to do some act required by law. Forfeiture is in the nature of a punishment attached by law to some illegal act or negligence in the owner of property, whereby he loses all his interests therein. While, as we have seen, the intent of the party counts for so much in determining the question of abandonment, it is not necessarily an element in the question of forfeiture. Repeating somewhat, we may say that as applied to water rights and easements for irrigation forfeiture is a penalty fixed by law for the failure to do, or the unnecessary delay in doing, certain acts tending toward the consummation of a right within a specified time; or, after the right has consummated, the failure to use the same for the period specified by law. So important is it considered in the arid states that all of the water available be put to some beneficial use that in nearly all of the states statutes have been enacted providing for the forfeiture of water rights for the failure to use them for a beneficial purpose. Under these statutes a person may

forfeit his right if he fails to commence the construction of his works, or to prosecute the work with reasonable diligence, or to finally complete his works, or to apply all of the water claimed to some beneficial use, within the time specified in the statute. And, as we have seen, the failure, after having secured the water right, to use all of the water originally appropriated works a forfeiture of the portion not used. Wyoming as early as 1888 passed a law declaring that the failure to use water for a period of two years should be deemed an abandonment. In 1905 the period was extended to five years.

In Idaho the period is five years; in New Mexico four years; in the two Dakotas three years; in Oklahoma two years; in Utah the question of forfeiture is blended with that of abandonment and while the statute fixes seven years as the time necessary to effect a forfeiture it adds, "but the question of abandonment shall be a question of fact, and shall be determined as are other questions of fact." A more recent statute, however, provides that all the necessary works must be constructed within the period of time to be fixed by the State Engineer, who may extend the time to the maximum period of five years, should the facts warrant it. But the construction of the works must be diligently prosecuted to completion, and if one-fifth of the work is not completed within one-half of the period allowed, or the whole construction not completed within five years from the date of the approval of the application, the right to the use of the water shall be forfeited. In California, after providing how an appropriation shall be made, the statute reads as follows, "**Forfeiture.** A failure to comply with such rules deprives the claimants of the right to the use of the water as against a subsequent claimant who complies therewith." This applies only to the acquiring of the water right. As to the use after the right is acquired the statute says, "The appropriation must be for some useful or beneficial purpose, and when the appropriator

or his successor in interest ceases to use it for such a purpose the right ceases."

In Colorado the Courts hold that where there is a failure on the part of the appropriator to apply the water within a reasonable time to a beneficial use, there is in effect a forfeiture of the inchoate right. Colorado has no statute fixing a definite time for the declaring of a forfeiture for non-use.

THE POLLUTION OF WATERS. This has been defined as the use of a stream in any manner that materially fouls the water, or the deposit therein of any filth or debris that so far affects the water as to impair its value for ordinary purposes, or anything which renders the water offensive to taste or smell, or which is calculated to excite disgust in those using it for ordinary purposes. In most of the states the matter of pollution of water is reached by statute. The statute of Colorado on this subject reads, "No sawdust, tailings or other deleterious substance shall be allowed to run or pass into or pollute any public waters containing fish, or deposited or left where it may be carried by natural causes into such waters, in such quantities as to destroy or be detrimental to the fish or spawn therein." Another section reads, "If any person or persons shall hereafter throw or discharge into any stream of running water, or into any ditch or flume in this state, any obnoxious substance, such as refuse matter from slaughter house or privy, or slops from eating houses or saloons, or any other fleshy or vegetable matter which is subject to decay in the water, such person shall be fined, etc." What will constitute a pollution of water to the detriment of the user thereof will depend largely upon the use he wishes to make of it. A certain amount of matter which would render water unfit for drinking and other domestic purposes would not be injurious for use for power purposes, and might be an advantage to it for application to the soil. A party who finds a stream in a certain condition of purity when

he makes his appropriation of water has the right to insist that later comers refrain from polluting the stream to his injury.

Of the water which falls upon the surface of the earth it was shown in our classification of waters in an early lecture a very considerable portion sinks into the ground and comes to the surface, if at all, at great distances from the point upon which it fell. All such water is included under the general term of subterranean waters, sometimes spoken of as underground water. It is not necessary here to go into the part of the discussion which pertains to geology, hydrology or engineering. Recognizing that there are such waters our task will be limited to the consideration of the phases of the law which have to do with their appropriation and use.

Repeating a portion of the outline of the classification of underground waters previously given we have

Subterranean waters:

- 1:—in channels,
 known and defined,
 independent.
 dependent.
 unknown and undefined.
- 2:—Artesian.
- 3:—Percolating
 diffused,
 tributary to surface streams,
 tributary to underground bodies,
 seepage.

The most important of these classes of underground waters is that including the underground water courses and streams.

It is a well established fact that water sinking through the crevices of the rocks finds its way into large fissures and flows for many miles in well defined channels and in large bodies far below the surface of the earth beyond the sight of man. These hidden rivers

often come to the surface far from the place where the waters composing them sank into the ground, and often find their way into large bodies of surface water or the sea without coming to the surface. When near enough to the surface to be reached by a reasonable amount of drilling they form an important source of supply for irrigation. When the course of such underground streams can be determined they become subject to the same laws of appropriation as surface streams, priority of right in their waters being recognized and protected as in visible streams.

OUTLINE OF LECTURE 18

Percolating waters and underground waters in channels.

Dependent underground streams. Right to tap this water same as applies to surface tributaries.

Artesian waters. Colorado definition of such waters.

Limit of right of surface owner to water lying below.

Three restrictions on use of artesian waters—cased, capped, and drill-hole stopped.

Rights of parties are correlated. Law of priority not apply.

Percolating waters—defined.

How divided. Diffused percolating waters.

Law of reasonable use. Tributaries to underground reservoirs.

Distinguished from artesian waters.

Judge Shaw's explanation of source of these waters.

Seepage water distinguished from percolating water.

Law of Colorado as to waste, spring, and seepage water.

Use of water on meadow land.

LECTURE 18

Distinguished from those bodies of underground water which move in defined channels are the waters which pass through the earth by percolation, saturating greater or less bodies of the lower strata of the soil, forming what is sometimes called sheet water, but moving so slowly or in undefined courses so that a boring tapping them at one place furnishes no index of the direction or the velocity of their movement. Carefully conducted experiment and observation often results in the determining of these last factors and changing a body of water from the class of undefined to that of defined water courses.

Our outline shows that in the classification those underground waters which move in known channels are subdivided into known independent subterranean water courses and known dependent subterranean water courses. The first of these includes those water courses which, independent of the influence of any surface streams, flow below the surface in well defined and reasonably well ascertained channels. There are many such streams in our Western states, some of which appear at intervals upon the surface and after flowing for a time sink again below it. As to the right to appropriate the waters of such streams the Court of Utah has said, "That known underground streams of water flowing in well-defined channels are subject to appropriation, and that the rights acquired in them by appropriation cannot be diverted by the wrongful act of another, is so well settled that we deem it unnecessary to enter upon a discussion of the question." In Colorado it is said in one case, "Underground currents of water which flow in well-defined and known channels, the course of which can be

distinctly traced, are governed by the same rules of law as streams flowing upon the surface." The Colorado Court has also said that the channels and existence of such streams, though not visible, are defined and known within the meaning of the law when their courses and flow may be determined by reasonable inference.

In those states where riparian rights are recognized such rights attach to these underground streams which flow in defined channels the same as to surface streams.

The second division of this class consists of defined and known subterranean streams which are called dependent. They depend upon surface streams for their supply of water, and are the underflow or sub-surface flow of these surface streams.

Those of you who have had experience in the West are familiar with the fact that many of our streams during the dryer portions of the year become dry upon the surface of the ground and that beneath this dry surface there continues to flow during the whole year a well marked undercurrent; the river flows upside down, the sandy bottom being above the water. It is this class of streams which belong to the division we are now noticing. It is also true that where a stream flows visibly throughout the year, if it is flowing at some distance above bedrock there is a body of soil reaching down to this rock which must be kept constantly saturated while the river continues to flow. This saturated body of earth following the course of the stream and reaching to greater or less distances beyond the limits of its banks is an underground stream of the dependent class. Any attempt to draw upon this underground portion of the water as by sinking wells near the stream, or by running tunnels below the level of the visible river bottom would diminish the amount flowing visibly in the river as certainly as would the tapping of an upper tributary of the river, hence the same rule applies to the appropriation of this underground water as applies to the appropriation

of the waters of the tributaries of streams, all prior appropriations on the main stream must be protected before any of the underflow can be appropriated. The Court in Montana, speaking of this question, said, "It must not be forgotten that the sub-surface supply of a stream, whether it comes from tributary swamps or runs in the sand and gravel constituting the bed of the stream, is as much a part of the stream as is the surface flow and is governed by the same rules." Artesian waters are those which sinking below the surface of the earth flow under impervious strata to lower levels, and are reached by means of deep drilling. The water from an artesian well may or may not come to the surface of the ground at the point of drilling, depending upon the amount of head in the confined water. The statute of Colorado defines an artesian well as any artificial well the waters of which, if properly cased, will flow continuously over the natural surface of the ground adjacent to such well at any season of the year. Experience has shown that the bodies of water from which the supply for such wells is drawn is not inexhaustible, and that while the first wells drilled over an artesian basin may give a strong flow, the boring of more and more wells finally produces a reduced flow in all the wells in the particular section. This fact has led to legislation looking to the conservation of the water arising from this source. When the development of water for irrigation and other useful purposes was started in the West, the theory upon which men acted was that if a person owns a piece of land, he owns whatever comes within its bounding lines if such lines extended to the center of the earth, and that, therefore, when a well had been drilled producing a flow of water the person upon whose land the drilling was done could not be controlled in the use or the waste of the whole amount furnished by the well. It was soon recognized, however, that a person who taps the underground supply cannot limit his taking to the portion lying within his boundaries but

must naturally draw from the whole body of underground water, as much from that portion under his neighbor's land as under his own. The importance of making the most of all water available in this arid country, from whatever source it might come, led the Courts to announce the rule that should govern in all such matters—That a man shall so use what belongs to him as not to work an injury to others.

Laws have been enacted in nearly all of the Western states restricting the use of artesian waters in three particulars: First, it is required that every such well shall be properly cased, that is, so cased as to prevent the water which may arise into the well from leaking out into the earth before it reaches the surface. Above the impervious stratum which retains the water at the depth at which it is found by the drill are usually strata of loose rock, beds of gravel or other porous material into which the water would readily flow as soon as it reached their level, if the casing of the well was not made tight enough to prevent leakage.

A second requirement is that an artesian well when not in use shall be securely closed to prevent the flow and waste of the water at such times as it is not needed for beneficial use.

The third requirement is that every abandoned drill hole shall be filled with impervious material to prevent the rise of the water into the porous strata above and its loss through such strata. The artesian basins are believed to contain at the time of the drilling of the first well which draws upon their supply of water, the accumulations of many years of drainage from higher levels. Taking this to be true it is evident that if they are emptied of this accumulation many years may have to elapse before they can be able to supply the original flow. To allow the supply, therefore, to be wantonly scattered without deriving from it its full benefit would be to prepare for coming generations, in many localities, a condition

of aridity. It is a question in which the public at large has so great an interest that the legislature, as guardians of the public good, are fully justified in seeking to control it. Whatever right any one person may have to tap the artesian supply he has in common with all who are in position to draw from the same supply, and he is bound to use from that supply with full consideration for the rights of all.

The rule, then, in regard to artesian waters is that the rights of the various parties who may draw from the common supply are correlated, and that each must use his portion in such a way as not to work unnecessary injury to the others. It is evident from the nature of the subject that the law of priority which applies to appropriations from surface streams should not apply to these underground bodies of water. Where an artesian basin underlies a body of government land, so long as it is not penetrated by a drilling, and no water comes to the surface no question of appropriating it can arise. It must first be raised to the surface and form a stream, the same as though it flowed from a natural spring before a valid appropriation can be made. But when such a stream is produced it is subject to appropriation.

We saw, when considering the various ways by which title may be acquired to water flowing on the surface, that the water being property may be made the subject of purchase and sale, also, that title might be procured by prescription, by the exercise of the right of eminent domain, or by estoppel, and that title might be lost by abandonment, by forfeiture, or by sale. We need not go into the subject as applied to artesian waters further than to say that all that is here said about surface waters applies with equal force to artesian waters.

The Classification of underground waters which I have adopted gives as a third general division the percolating waters of the soil. Our discussion to this point has confined itself to those waters which are found flowing

in more or less well defined channels, either upon the surface or at some depth below the surface. Percolating waters have been defined as being those waters which slowly percolate or infiltrate their way through the sand, gravel, rock, or soil, which do not then form a part of any body of water or the flow of any water course, but which may eventually, find their way by force of gravity to some body of water. We are not to confuse with what are strictly meant by percolating waters those waters which form the underflow of surface streams, of which I have already spoken.

These percolating waters are divided into diffused percolations; percolating waters tributary to surface water courses or other bodies of surface water; percolating waters tributary to underground reservoirs or other bodies of underground waters; seepage.

The greatest part of this class of waters is included in the division of diffused percolating water. It does not belong by direct communication to any recognizable stream; it is the mass of soil water which is slowly making its way, under the influence of gravity, to lower levels. It cannot be the subject of appropriation so as to establish any prior right to it, but each person has the right to make a reasonable use of whatever is found within his own soil. The rule of reasonable use is that one man must use the waters percolating through his own lands in a manner reasonable to the needs and necessities of his own tract of land, and also having due regard to the co-equal rights of his neighbors whose lands overlie the same strata.

A portion of the water which serves to saturate more or less completely the soil of the country at large is gradually working its way towards and finally into the surface streams; these are classed as percolating waters tributary to surface waters. A person beneath whose land such water is moving may bring it to the surface by what-

ever means he sees fit to adopt, and may use as much as he needs for his own purposes, but he cannot sell it or carry it to great distances from the place where it was captured, his rights are correlative with those of others having land over the same moving body of water and he must keep in view the rights of these others while he uses his own right.

The third class of percolating waters are those tributary to underground reservoirs or catchment basins. These accumulate in much the same manner as artesian waters, excepting that the latter are held beneath the impervious strata at considerable depths, while the former flow down the slopes of the hills and accumulate near the surface of the earth against some natural bar or other impediment and form bodies of highly saturated gravel, amounting in reality to underground reservoirs or catchment basins. In a case coming before the Court in California, Mr. Justice Shaw made some remarks which will help you to grasp what is meant by this division of percolating waters; "The geological history and formation of the country is peculiar. Deep borings have shown that almost all of the valleys and other places where water is found abundantly in percolation were formerly deep canyons or basins, at the bottom of which anciently there were surface streams or lakes. Gravel, boulders, and, occasionally pieces of driftwood have been found near the coast far below tide level, showing that these sunken streams were once high enough to discharge water by gravity into the sea. These valleys and basins are bordered by high mountains, upon which there falls the more abundant rain. The deep canyons or basins in course of ages have become filled with the washings from the mountains, largely composed of sand and gravel, and into this porous material the water now running down from the mountains rapidly sinks, and slowly moves through the lands by the process usually termed 'percolation' forming what are practical-ly underground reservoirs."

The Court of Colorado speaking of percolating waters, said, "The law regulating the ownership of percolating waters in the arid States is now of great—as time passes it will be of still greater—importance, and until a proper case is presented calling for it we decline to announce the rule applicable to our local conditions." As the proper case does not seem to have presented itself, we do not know what will be the rule in this State.

Under the theory of correlative rights, which has been adopted in California and some of the other Western States, the rule as to ownership of water in artesian or catchment basins is well stated in a case in California, "The general rule as now established by decisions of this Court, undoubtedly is that where two or more persons own different tracts of land, underlaid by porous material extending to and communicating with them all, which is saturated with water moving with more or less freedom therein, each has a common and correlative right to the use of this water upon his land to the full extent of his needs, if the common supply is sufficient, and to the extent of a reasonable share thereof if the supply is so scant that the use by one will affect the supply of the others." You will notice upon examination of the rule as here given that there are certain limitations: First, there must be an ownership of the land under which the water lies. Second, if there is not enough of the water to supply all of the wants of the land owners, each land owner is limited to a reasonable or correlative share, as against the rights of other land owners. Third, each land owner has the right to the use of the water "upon his land" as his needs may require.

Seepage water is the water which after lands have been irrigated for some years appears below the irrigated land in low places. It might be said to be artificially produced since it results from the previous use of water from natural sources. We have already learned that a person has the right to appropriate seepage water flow-

ing from the lands of another, but that he cannot get a vested right to require that the seepage or waste from the land above him be continued to satisfy such appropriation.

This completes the review of the different sources of water for irrigation which the plan of these lectures will permit.

With regard to the appropriation of spring waters the statute of Colorado reads as follows:

“That all ditches now constructed or hereafter to be constructed for the purpose of utilizing the waste, seepage or spring waters of the state shall be governed by the same laws relating to priority of right as those ditches constructed for the purpose of utilizing the waters of running streams; **provided**, that the person upon whose lands the seepage or spring waters first arise, shall have the prior right to such waters if capable of being used upon his lands.”

Another section of the law provides, “That hereafter when any person or persons, or corporation shall be engaged in mining or milling, and in the prosecution of such business shall hoist or raise water from mines or natural channels, and the same shall flow away from the premises of such persons or corporations to any natural channel or gulch, the same shall be considered beyond the control of the party so hoisting or raising the same and may be taken and used by other parties the same as that of natural water courses.”

“All persons who shall have enjoyed the use of the water in any natural stream for the irrigation of any meadow land, by the natural overflow or operation of the water of such stream, shall in case the diminishing of the water supplied by such stream, from any cause, prevent such irrigation therefrom in as ample a manner as formerly, have right to construct a ditch for the irrigation of such meadow, and to take water from such stream therefor, and his or their right to water through such

ditch shall have the same priority as though such ditch had been constructed at the time he, she, or they, first occupied and used such land as meadow ground."

With regard to springs, it may be said that if a person allows water arising on his land to flow off from it, he loses control of the water and it may be appropriated by others below.

OUTLINE OF LECTURE 19

International waters. Question between U. S. and Mexico.

Treaty of Guadalupe Hidalgo.

Conditions at that time.

Later treaty. Boundary Commission. Early use of water in Mexico.

Questions arising from building of Engle Dam.

Provisions of treaty of 1906. Obligations resting upon U. S.

Interstate control. Some litigation has arisen.

Apparent disposition of the courts on these questions.

Meaning of equitable division.

Kansas-Colorado case—holding of Court.

State lines to be disregarded and priority to control.

Appropriation in one State to be used in another State when stream is interstate. Case on Republican River.

Case when the stream is wholly in one state.

National Reclamation Act, first in 1902.

General provisions of the Act. Effect on homestead entry.

What to be done on completion of project.

What is entryman required to do?

Result of failure to make payments.

LECTURE 19

The subject which now invites our attention is one which during the last ten or fifteen years has been growing in importance and promises to furnish the ground for important court action for years to come. I refer to the subject of the control of water by international agreement, adjudication of rights interstate, and the control by the State and by municipalities.

Several questions have already arisen between our country and the Republic of Mexico concerning the use of the waters of the Rio Grande River, and cases are coming into the Courts with increasing frequency requiring the settlement of claims in different states upon the same stream which rising in one State flows into another before reaching the sea. Conflicts are arising between the United States and the several States in their sovereign capacity as to the ownership of waters wholly within a single state. As these questions will doubtless occupy some considerable portion of the attention of the public in the future, it is only proper that as you leave this institution with a preparation which presumably fits you for a larger participation in the political affairs of your country you have an intelligent understanding of these important subjects.

A stream which forms the boundary between two political divisions of our country, and streams which arising in one political division flow out across or into another political division are called interstate streams.

On the 2nd of February, 1848, the United States entered into a treaty with the Republic of Mexico, known as the Treaty of the Guadalupe Hidalgo. At that time the Gila River and the Rio Bravo del Norte (now known as the Colorado River) formed a part of the boundary

between the two republics. In the treaty above referred to it is provided, "that the navigation of the two rivers named, where they form the boundary between the two countries, shall be free and common to the vessels and citizens of both countries, and neither shall, without the consent of the other, construct any work that may impede or interrupt, in whole or in part, the exercise of this right.

Subsequent to the date of this treaty, that is to say on the 30th of June, 1843, the two countries entered into another treaty whereby the United States purchased a strip of territory from Mexico; this treaty being known as the Gadsden Treaty. The Gadsden Treaty changed the boundary line between the two countries leaving the Colorado River wholly within the United States. The provisions of the former treaty as to the Gila River were repeated. In September, 1886, a convention called the Boundary Convention was held by delegates from each of the countries, which agreed upon the Rio Grande and Colorado Rivers, at certain parts of their course as the national boundary.

Still later an international boundary commission was created by the joint action of the two powers with jurisdiction to hear and determine questions arising between the two nations over boundary, and use of boundary streams.

Within a short time after the arrival of the Spaniards in Mexico the waters of the Rio Grande river commenced to be used by them for irrigation. This use had continued for nearly three hundred years, the river being during all the time wholly within Mexican territory. In very recent years citizens of the United States have been constructing wing dams and other structures in the Rio Grande river whereby much of its water was being diverted, to the injury of the far older rights of the Mexicans. It became necessary, if international complications were to be avoided, to make some arrangement, by treaty,

whereby an equitable division of the waters of the river should be arrived at. The building of a great dam across the river at Engle, New Mexico, produced a condition which made action urgently necessary and led to negotiations which culminated in a new treaty between the two countries, which established what is now accepted as the fundamental law governing the division of the waters of the river between the two countries.

This treaty is dated May 21st, 1906, and I shall quote rather largely from its provisions.

“ARTICLE 1. After the completion of the proposed storage dam near Engle, New Mexico, and the distributing system auxiliary thereto, and as soon as water shall be available in said system for the purpose the United States shall deliver to Mexico a total of 60,000 acre feet of water annually, in the bed of the Rio Grande at the point where the headworks of the Acequia Madre, known as the Old Mexican Canal, now exists above the city of Juarez, Mexico.

“ARTICLE 2. The delivery of the said amount of water shall be assured by the United States, and shall be distributed through the year in the same proportions as the water supply proposed to be furnished from the said irrigation system to lands in the United States in the vicinity of El Paso, Texas, according to the following schedule, as nearly as possible:

January	0	acre feet
February	1,090	“ “
March	5,460	“ “
April	12,000	“ “
May	12,000	“ “
June	12,000	“ “
July	8,180	“ “
August	4,370	“ “
September	3,270	“ “
October	1,090	“ “

November	540	"	"	"
December	0	"	"	"

"In case, however, of extraordinary drought or serious accident to the irrigation system in the United States, the amount delivered to the Mexican canal shall be diminished in the same proportion as the water delivered to lands under said irrigation system in the United States.

"ARTICLE 3. The said delivery shall be made without cost to Mexico, and the United States agrees to pay the whole cost of storing the said quantity of water to be delivered to Mexico, of conveying the same to the international line, of measuring the said water, and of delivering it in the river bed above the head of the Mexican Canal.

"ARTICLE 4. The delivery of water as herein provided is not to be construed as a recognition by the United States of any claim on the part of Mexico to the said waters; and it is agreed that in consideration of such delivery of water Mexico waives any and all claims to the waters of the Rio Grande for any purpose whatever between the head of the present Mexican Canal and Fort Quitman, Texas, and also declares fully settled and disposed of, and hereby waives all claims heretofore asserted or existing, or that may hereafter arise, or be asserted, against the United States on account of any damages alleged to have been sustained by the owners of land in Mexico by reasons of the diversions by citizens of the United States of waters of the Rio Grande."

It will be seen that the effect of this treaty is to oblige the United States to complete the Engle dam project and to deliver each year 60,000 acre feet to Mexico, this being approximately the amount of water that has been used for very many years in the Old Mexican Canal. The government contemplates watering 180,000 acres of land from this project, in the United States.

This is the only complication that has arisen between our government and another, and the amicable manner

in which it was settled marks a progress in international relations.

The question of interstate control, while it has not threatened to bring about a resort to arms between the states, has produced a certain amount of ill feeling and a sentiment that the states nearest the mountains are trying to deprive other states of a fair participation in the gifts of nature.

The states lying nearer to the mountains, where the aridity of the climate is more marked have adopted the doctrine which I have described as the Arid Region Doctrine of Appropriation, while those further out have adhered wholly or in part to the Riparian doctrine. The states having the former doctrine have claimed the right to appropriate all of the water in a stream which rises within their borders, before it reaches the line of another state; states maintaining the Riparian doctrine claim that they have a right to have the waters of the stream run down to them, and to insist that the river shall be allowed to flow as it has been wont to flow.

There is no question of the right of a state to adopt any system which it seems fit to adopt with relation to the control of waters within its borders, but it cannot force its doctrine upon another state; each state has rights which the other is bound to respect with relation to the common stream and as the question is one between different states or between the citizens of different states the matter comes regularly before the Courts of the United States for settlement.

We have seen that in the use of an underground supply of water, as well as in the use from surface streams, no individual has the right to use the water, even that lying below his own soil, without regard to the rights of his neighbors; the Courts of the United States seem disposed to hold to the same rule as between states and to say to a state you must use the water of streams flowing from one state into another with due regard to the rights

and necessities of your neighbor state, and to make an equitable division of the waters of the stream.

An equitable division of the water does not necessarily mean an equal division; it means a division with a view to the different needs of the parties. One state may have an almost negligible amount of rainfall and thus need much water for irrigation, while the other, lying further from the mountains, has a more abundant supply of precipitation and can get along with much less use from the stream.

The most interesting case which has come before the Courts and reached determination is one which arose between the State of Kansas and the State of Colorado over the use of the waters of the Arkansas river. This river rises in the mountains of Colorado and after flowing across the entire breadth of the eastern plains of the state, passes into the State of Kansas. For many years the people of Colorado have been developing irrigation enterprises which depended for their success upon the use of the waters of this river. The suit was commenced by the State of Kansas against the State of Colorado and a large number of private corporations, to prevent such a use of the waters of the Arkansas river in Colorado as would cause such a depletion of the flow of the river through Kansas that it would be an injury to the interests of Kansas and her people. Without entering upon a discussion of the legal intricacies of the case we may state some of the conclusions reached by the United States Court.

The Court held that while it is true that Congress cannot decide what rule a state shall adopt concerning the control of waters within her borders, and while it is true that one state cannot force its policy upon another state, it does not follow that there is no authority anywhere to adjust the relative rights of different states, and held that authority resides in the Supreme Court of the United States. Referring to other cases that have arisen between states over the pollution of the waters of a river in one

state to the injury of people in a lower state on the stream, and others, the Court said that "through these successive disputes and decisions this court is practically building up what may not improperly be called interstate common law."

The two states involved in the case which we are considering having, as I have said, adopted different policies concerning water, one the doctrine of appropriation, the other the riparian doctrine, each, of course, tried its case in theory on its own doctrine. The Court was placed in a position where it must decide between or formulate a rule for adjustment between them. As the Court said, "The Court must so adjust the dispute upon the basis of equality of rights as to secure, as far as possible, to Colorado, the benefits of irrigation, without depriving Kansas of the like beneficial effect of a flowing stream." The Court found that by the diversion of the water in Colorado there had been a perceptible injury to the portions of the Arkansas Valley in the State of Kansas; and, on the other hand, the result of the appropriation had been the reclamation of large areas in Colorado, and the transforming of thousands of acres of arid lands into fertile fields, and, "When we compare the amount of this detriment with the great benefit which has obviously resulted to the counties in Colorado, it would seem that the equality of right between the states forbids any interference with the present withdrawal of water in Colorado for the purpose of irrigation."

The tendency of the Courts seems to be to reach the rule that in the adjustment of rights between claimants in different states on the same stream no notice shall be taken of state lines but, the river being taken as a whole without regard to such lines, the law of priority must prevail; that he who is first in time is first in right whether he is taking water from the river in the upper or in the lower state.

The Court in Idaho says, "The relative rights, there-

fore, of appropriators of waters of an interstate stream, are the same, whether the appropriations are all in the same state or some in one state and the balance in another state." The United States District Court has said in another case, "The right to divert running waters for the irrigation of lands in an arid country is not controlled or affected by political divisions. It is the same in all states through which the stream may pass."

We can see that if the Court of the United States adopts the rule of equitable division of the waters of an interstate stream, it will make no difference whether both states interested in a controversy have adopted the same policy regarding its control of water or not; one may adopt while the other ignores the riparian doctrine without affecting the application of the rule of equitable division of the water.

Cases have arisen in which water has been appropriated in one state to be used in another state, from an interstate stream. This usually occurs from the fact that in order to secure a sufficient fall it is necessary to go up the stream to divert the water and this may take the appropriator across the state line. A case of this kind arose when a citizen of New Mexico came across the line into Colorado and diverted water from a stream which flows from Colorado into New Mexico. His ditch ran for six miles in this state and then crossed the line. He came into Court to secure a decree for his appropriation, but the Court did not believe it had the right to enter a decree for water to be used outside of the state. His right to take the water was not questioned, but the right to grant the decree was doubted.

While this course of lectures is in preparation (winter of 1914-15) a case has been decided by the District Court of the United States involving the right to use waters from the Republican river by an appropriator in Nebraska, the said river having its source in the eastern part of Colorado and flowing into Nebraska. The ditch in

this case is taken out from the river in Colorado and crossing the state line is used in Nebraska. The Court followed earlier decisions in deciding that the rule should be that priority in time gives the better right, regardless of state lines.

There is another class of cases arising from a different state of facts. Where a stream lies wholly within one state, may a person go into that state and appropriate water from such a stream to be used in an adjoining state? In those states which have adopted a policy of control claiming all the waters of the state as the property of the state or of its people there can be no doubt that an attempt to carry it outside the state may be prevented.

Our discussion to this point has had to do with the development of the arid region of our country through private enterprise alone. For many years, however, the general government has manifested an interest in the development of the government lands lying within this region, especially with regard to such enterprises as have in view the construction of works on so large a scale as to practically put them beyond the reach of private capital. These projects have for their objects the utilization of the waters in the larger streams and the bringing of water to lands which lie at considerable distance from the water supply.

The various plans adopted by the government are the taking of lands under the Desert Land Act, the encouragement of states to take up the matter under the Carey Act, and the National Reclamation Act, which is entirely a government proposition.

The object of this course of lectures is to deal with the law as it pertains to water, but so intimately is the subject of acquiring title to land interwoven with the acquiring of title to water, under the National Reclamation Act, that I am obliged to give a good deal of attention to both subjects in discussing this Act.

The first Act of Congress dealing with the disposal

of public lands along with water for their irrigation was passed in June, 1902. Prior to this date the government had made no move in the matter of developing the water of the Arid West for the purpose of irrigation. This Act authorizes the Secretary of the Interior, at the time of beginning surveys for any contemplated project, to withdraw from entry, excepting under the homestead laws, any public lands believed to be susceptible of irrigation from the project. It provides that all lands included in the area withdrawn that are entered under the homestead laws shall be subject to all the provisions, limitations, charges, terms, and conditions of the Act. The commutation privilege which had been enjoyed under the homestead law was withdrawn from homesteads taken under the Reclamation Act. Upon the completion of any project the Secretary of the Interior is required to give notice of the lands which may be irrigated under the project, and the limit of the size of tract which may be included in an entry, the charges which shall be made per acre in said entries, and upon private lands which can be irrigated from the project, and the number of annual installments, not to exceed ten, in which such charges shall be paid, and the time when such charges shall commence. The entryman upon the lands to be irrigated from such project must, in addition to complying with the previous requirements of the homestead law, reclaim at least one-half of the total irrigable area of his land, and pay to the government the charges apportioned against his land, after all of which he will be entitled to a patent for his tract. There must be actual and bona fide residence upon the land. The annual payments are to be made to the receiver of the local land office, and a failure to make any two payments when due renders the entry subject to cancellation, with the forfeiture of all the rights under the Act, as well as of all moneys already paid.

This states briefly the principal provisions of the Act

with all of its cold-blooded provisions for getting all that a settler has and then turning him out with the information that he will not be allowed to try it again upon any other government project.

It has been found from experience that some of the above requirements were too onerous and Congress in the winter of 1914-15 passed an amendment whereby the demands upon the settler are made more possible of performance.

OUTLINE OF LECTURE 20

General object of Desert Land Act; and of Carey Act.

Progress under Reclamation and Carey Acts.

Harsh features of the Reclamation Act.

Opinion of Dr. Mead.

Control of waters left to the states.

Source of funds for Reclamation Service. Farm unit.

Assignment of homesteads.

Original fund supplemented by loan.

Leave of absence.

How treat homesteader who was there first.

Effect of cancellation of entry.

Water made appurtenant to the land.

Water user's association. Object.

Transfer of the land transfers the water though not mentioned in deed.

Mr. Kinney's comment.

Later Legislation.

LECTURE 20

In March, 1875, congress passed an Act known as the Desert Land Act to encourage settlers to go upon the arid and semi-arid lands of the public domain and to endeavor to bring at least a portion of the land filed upon under irrigation, and on March 3rd, 1877, an additional act was passed to supplement the original Act of 1875. In 1894 the Carey Act was passed, by which it was proposed to donate to the States in which such lands were located, lands not to exceed 1,000,000 acres in each State, as far as the State would cause the same to be reclaimed. In 1901, President Roosevelt, in his first message to Congress, urged the adoption of some policy by the general Government for the reclamation of arid lands on an extensive scale. In this message the President said, "In the arid region it is water, not land, which measures production. The Western half of the United States would sustain a population greater than that of our whole country today if the waters that now run to waste were saved and used for irrigation. The forest and water problems are perhaps the most vital problems of the United States."

The National Reclamation Act is, to some extent, a rival of the Carey Act. The development of the projects undertaken by the general Government have moved slowly while under the Carey Act lands have been set aside for the State in a number of instances, the works have, in many cases, been prosecuted with diligence to completion, and the water brought to the land as required by law, and settlers are now enjoying the benefit of the law. Progress has been rapid, thrifty communities have started and towns and cities are springing up where but a few years ago was nothing but cactus and sage brush.

In 1909, there were under actual irrigation from wa-

ter furnished by National Reclamation projects 395,646 acres. The acreage capable of irrigation under such projects was at that time 786,190 acres. The acreage included in enterprises completed or under construction in 1910 were 1,973,016 acres.

The National Reclamation Act, as originally passed, limits the amount of land that may be taken by any one person to 160 acres; it requires five years' residence, real, not pretended, and a full compliance with all of the requirements of the homestead law, and then before he can get patent the settler must pay all of the water charges assessed against his land, so that in addition to the five years' waiting for title required by the homestead law, there is an additional five years necessary to complete the ten annual payments. Whereas the homestead law required that the settler show upon application for patent that he had put one-eighth of his land under cultivation, the Reclamation Act requires a showing that one-half of the land has been cultivated. The provisions that the failure to pay any two of the annual water assessments shall work a forfeiture of all that has been paid and the cancellation of the filing is harsh; it is a well known fact that the homesteader in that portion of the country where a sufficient amount of rainfall may be counted upon to mature crops has been obliged to struggle along for a number of years before he succeeded in more than making a scanty living for his family. Rich men, or men with a fair start in the world, are not the class who have settled upon the homesteads of the country. The homesteader has usually been a man who had energy, pluck and health as his principal assets. If he was able to secure a team, some of the most essential implements of farming and money enough to build a shack to protect his family from the weather he was as well fixed as the average settler. His first efforts, under conditions entirely new to him, were usually failures and many a man has eked out a bare

existence by working at odd times for someone who was employing labor.

To have required such men to make an annual payment of even a few cents per acre for the first few years would have meant absolute prohibition to their enjoyment of the munificence of the Government. To require just such men, under no better conditions for getting a start, to begin by paying from four to five dollars per acre per year is prohibitive to those who act with foresight, and ruinous for those who do not.

The purpose for which the reclamation of the lands of the arid region was taken up by Congress is one of the greatest that has occupied the attention of the Government; it is to be regretted that the details of the system could not have been worked out by men with greater knowledge of the conditions to be met, and a clearer appreciation of the limitations of human ability.

Dr. Elwood Mead, who has perhaps given more attention to problems of this nature than any other man in our country, writing upon this subject said, "I do not think either the settlers or the Government are doing as well as they should under a number of the National projects. The reasons for this seem to be the poverty of the settlers and the severe conditions of payment exacted by the Government. When these projects were inaugurated settlers with little or no capital were allowed to file on the land, and in some instances encouraged to do so before there was water for irrigation or any means for productive employment. Before the settler was in a position to grow crops all of his money had been dissipated in living expenses and erecting a habitation, and now, when there is water to use and an obligation to pay for it, the settler lacks seed, teams, tools, and money to live on, all of which are essential to grow a crop or utilize the land and water.

"This distressing situation is made worse by the Government requiring these settlers to repay the cost of the works in ten years. In some cases this payment reaches five

dollars per acre, or \$400 for an eighty-acre farm. There are few cases where the first crop is a success. It is rare that it repays the cost of cultivation; hence the settler, if he pays the Government charge, must pay it from money he brought with him. Those who did not have considerable money to start with are not paying. Worse than this, they are living under hard conditions, and are not developing the land in a way to pay in the future.

"The remedy or remedies would seem to be: Extend the terms of payment. Make the period thirty years, charging nothing but interest for the first five years. Failure to charge interest on deferred payments is a fundamental mistake in the Act. It is an incentive to men to defer payments. It was one of the causes for making the time of repayment so short. Better results will come to both settlers and the Government by giving ample time and charging a low rate of interest on deferred payments."

One of the provisions of the Reclamation Act has for its object to assure the control of the waters in a State in the State Government; it reads as follows, "Nothing in this Act shall be construed as affecting or intending to affect or to any way interfere with the laws of any State or Territory relating to the control, appropriation, use or distribution of water used in irrigation, or any vested right accrued thereunder, and the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws, and nothing herein shall in any way affect any right of any State, or of the Federal Government, or of any land owner, appropriator, or user of water, in, to, or from any interstate stream or the waters thereof."

It follows from this section that if the U. S. Government desires to use water from the streams or other natural water supply in a State for its reclamation projects, it must comply with the laws of the States rela-

tive to the appropriation of water exactly as is required from an individual appropriator.

My purpose does not require that I give the full text of the Reclamation Act; it will be sufficient to call your attention to some of its most important provisions.

As to the source from which the Government proposed to secure the funds with which to carry on the work, the first section reads, in part, "that all moneys received from the sale of the public lands in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming, beginning with the fiscal year June 30th, 1901, including the surplus of fees and commissions in excess of allowance to registers and receivers, and excepting the five per centum of the proceeds of the sale of public lands in the above States set aside for educational and other purposes, shall be and the same are hereby, reserved, set aside, and appropriated as a special fund in the treasury, to be known as the 'reclamation fund'....."

From time to time since the passage of the original Act in 1902 Congress has passed amendatory Acts to regulate particular features of the system as necessity appeared to require.

The original Act placed the minimum farm unit under any of the projects at forty acres; an Act of 1906 gives the Secretary of the Interior authority to fix a smaller unit where he believes circumstances will make it possible for one to support his family on less than forty acres.

An Act of June, 1910, provides that entrymen for homesteads within reclamation projects may assign their entries upon satisfactory proof of residence, improvement, and cultivation for five years as though the entry had been made under the original Homestead Act, but all assignments made under this Act are to be subject to limi-

tations, charges, terms and conditions of the Reclamation Act.

The Interior department had not been long engaged in the work of preliminary survey and other preliminary services before it was discovered that the fund provided by the Act to which I have called your attention would fall short of the amount needed to carry out the plans of Congress. As a consequence, Congress, in June of 1910, passed an Act authorizing advances to the "reclamation fund," and for the issue and disposal of certificates of indebtedness in reimbursement therefor.

This Act provided for the appropriation of \$20,000,000 from other funds of the United States, to be applied to the completion of such works as had already been commenced.

It is also provided by this Act "That no entry shall be hereafter made and no entryman shall be permitted to go upon lands reserved for irrigation purposes until the Secretary of the Interior shall have established the unit of acreage and fixed the water charges and the date when the water can be applied and made public announcement of the same. This Act in terms repeals the Act of 1902 which appropriated, as we have seen, the receipts from the sale of public lands in certain States and Territories.

An important provision of this Act of 1910 is that which authorizes the Secretary of the Interior to grant to homesteaders leave of absence when water is not available for the irrigation of their lands, until such time as the water is turned into the main canals from which their land is to be irrigated.

An Act of 1911 authorizes the Secretary of the Interior to contract for the impounding, storage and carriage of water whenever the capacity of the works of any project is in excess of the needs of the land under and to be irrigated from the project, with irrigation systems operating under the Carey Act.

Nearly all of the States and Territories affected by

the Reclamation Act have passed laws granting rights of way over state lands, and providing that in the sale of state lands that lie within the area of any Reclamation project parcels shall be sold in conformity with the classification of farm units by the U. S.

The secretary of the Interior is authorized to withdraw from settlement two classes of land; first, the land needed for the construction of the works connected with any project; second, any land believed to be susceptible of irrigation under the project. It being impossible to determine how much land can be irrigated from a project before careful and extensive surveys are made, and it being also impossible to know just how much water will be developed it has been customary to withdraw a larger body of land than can be eventually irrigated under the project. Provision is made in the various Acts for the returning of such lands to entry outside of the project. If a person has filed upon land under the homestead laws, before a reclamation project is planned and it is found that the Government in planning a project will need to use the land included in the homestead, if the entryman has not offered his final proof, the Government may cancel the entry, and appropriate the lands embraced in the entry, after paying the value of the improvements and the enhanced value of the land.

I have said that if the government wishes to use water from the streams controlled by any State it must proceed to appropriate as an individual would be required to do. If, however, the government owns bodies of Public Lands within a State and the water on such land, and no vested rights have accrued to the use of the water, it may make such use of the water as it sees fit, and may withdraw it from appropriation. The Supreme Court of the United States has said, "The power of the Government to reserve the waters and exempt them from appropriation under the State law is not denied, and could not be."

It is provided in the Reclamation Act that the title and management and operation of the reservoirs necessary for their protection shall remain in the government.

If for any reason the entry of a person on land under a reclamation project is cancelled, he forfeits all payments he has made and if another person subsequent to such cancellation enters upon the same tract he is given no credit for the payments previously made by the other entryman, but must commence all over again. However, a person who has entered lands under the Act, and against whose entry there is no pending charge of non-compliance with the law or regulations, or whose entry is not subject to cancellation under the Act, may relinquish his entry and assign to a prospective entryman any credit he may have for payments already made on account of said entry, and the party taking such assignment may receive full credits for all payments so assigned to him.

No water will be furnished for irrigation in any year so long as there are unpaid arrears of payment of charges for operation and maintenance.

Section 8 of the Reclamation Act declares that the right to use of water acquired under the Act shall be appurtenant to the land irrigated and that beneficial use shall be the basis, the measure, and the limit of the right. We have seen in an earlier part of these lectures that the attempt to make the water right inseparably appurtenant to the land for which it was originally appropriated has been denied recognition by the State Courts of all of the Western States. It remains to be seen what will be the effect of the effort of the U. S. to secure the same result by Congressional legislation.

In order that the Government in dealing with the settlers on a reclamation project may avoid the difficulty of dealing with many, it might be with hundreds of individuals each with his private grievance, or difficulty to adjust, great encouragement has been given to the formation of Water Users' Associations.

The Reclamations Act provides that when the payments required by the Act are made for the major portion of the lands irrigated under any projects, "then the management and operation of such irrigation works shall pass to the owners of the lands irrigated thereby, to be maintained at their expense under such forms of organization and under such rules and regulations as may be acceptable to the Secretary of the Interior."

The object of the waters users' associations is to take over the management of the project when the time arrives when under the provisions of the Act it can be turned over to them. It is felt to be desirable to have some responsible organization, acceptable to the Secretary of the Interior to receive the management, and, to facilitate the doing of business with the many land holders, to have a smaller number who could speak for all. The settlers under the Salt River Valley project were the first to form such an organization, and the principles embodied in their organization have formed the basis of similar organizations in other sections of the country. The essential features of these articles of incorporation are that they provide means for putting into effect the provisions of the Reclamation Act in regard to the ownership of the reclaimed areas in small tracts and for guaranteeing repayment to the United States of the cost of the Reclamation of the land by the Government. The property of the water users is in effect mortgaged to the Government to secure the repayment of the estimated cost of construction of the works. The articles of incorporation represent a series of adjustments and compromises and serve to harmonize many complications of water right claims and of land ownership. The by-laws of the organization must prescribe the internal administration and the relation of the stockholders to each other and to the Government in the matter of water rights and other features required by the Secretary. Without taking the space to recite the articles of incorporation we may state briefly the heads; these

are: the name of the incorporation; names of the incorporators; place of business; purposes of the organization; capital stock and how divided into shares; term of corporate life; size of board of directors; exempting individual property of members from debts of the corporation; limitation of corporate indebtedness; list of stockholders and amount of stock held by each.

There are some provisions in the by-laws which are of interest to us. It is provided that any water heretofore appropriated by the stockholder, or his predecessors in interest, shall become appurtenant to the land and be and remain incident to the ownership of the shares owned by him in the organization appurtenant to the said landand all rights, whatever their source or whatever their manner of acquisition, to the use of water for the irrigation of said lands, shall hereafter be inseparably appurtenant thereto. No abandonment of the land or water rights shall be for the benefit of any person designated by the party, directly or indirectly, or to his use. Provided, however, if for any reason it should at any time become impracticable to beneficially use water for the irrigation of the lands to which the right to the use of the water is appurtenant, the right may be severed from the said land and simultaneously transferred and attached to other lands to which shares of stock in the organization are or shall thereby be made appurtenant, if a request for leave of transfer, showing the necessity therefor, shall have first been allowed by a two-thirds vote of the board of directors at a regular meeting and approved by the Secretary of the Interior.

A transfer of the land operates to transfer the water used with the land whether the water is named in the deed of transfer or not. The purchaser of land under the project grants to the U. S. right of way over the land for construction and operation of ditches, tunnels, canals and other water conduits, telephone and electric transmission lines, drains, dikes and other works for irrigation,

drainage or reclamation; and in paying for the water for his tract of land no allowance is made for the land taken for such rights of way: he must pay for water for every acre included within the government subdivision of the land he takes.

Mr. Kinney, in commenting on the Reclamation Act, says: "The whole scheme seems to be drawn upon the plan of a shrewd Eastern money lender, who takes extraordinary precaution to secure the payment of the money advanced upon security of doubtful value."

By an Act approved August 9th, 1912, it is provided that when an entryman has complied with the provisions of the law as to residence, reclamation and cultivation, he may submit proofs of such facts, when, if found satisfactory, patent will be issued to him, reserving to the United States a first lien upon the land and the water rights used in connection therewith until all payments due or to become due to the United States are made.

If payments are not made the United States may foreclose the lien and take the property, but the settler or any person in interest under him may redeem from such foreclosure at any time within one year thereafter.

A settler is given the right to mortgage his holdings and in case he fails to keep up his payments the mortgagee may make such payments to protect his interest.

The following sections taken from the Regulations issued by the Department of the Interior are of interest:

"92. If any entry subject to the reclamation law is canceled or relinquished, the payment of water-right charges already made and not assigned in writing to a prospective or succeeding entryman under the provisions of paragraph 94 hereof are forfeited. All water-right charges which remain unpaid are canceled by the relinquishment or cancellation of the entry, except as provided by the specific provisions of public notices applicable to particular projects.

"93. Any person who applies to enter the same land at the time of relinquishment and at the same time files an assignment in writing of the charges theretofore paid will be allowed credit therefor. If the application to enter is made at a later date or is not accompanied by a written assignment of credits the applicant must pay the water-right charges as if the land had never been previously entered.

"94. A person who has entered lands under the reclamation law, and against whose entry there is no pending charge of non-compliance with the law or regulations, or whose entry is not subject to cancellation under this act, may relinquish his entry to the United States and assign to a prospective or succeeding entryman any credit he may have for payments already made under this Act on account of said entry, and the party taking such assignment may, upon making proper entry of the land at the time of the filing of the relinquishment, if subject to entry, receive full credit for all payments thus assigned to him, but must otherwise comply in every respect with the homestead law and the reclamation law."

In August, 1914, Congress passed an act which increases the time of payment for land and water rights under the Reclamation Act, and gives to the Secretary of the Interior the option to recover payments in arrears by suit instead of requiring him to cancel the entry. I give below some of the section of this Act which bear directly upon our subject:

"An Act extending the period of payment under reclamation projects, and for other purposes:

"Be it enacted....., That any person whose lands hereafter become subject to the terms and conditions of the Act approved June 17th, 1902, entitled 'An Act appropriating the receipts from the sale and disposal of public lands in certain States and Territories to the construction of irrigation works for the reclamation of arid

lands, etc.' and Acts amendatory thereto, hereafter to be referred to as the reclamation law, and any person who hereafter makes entry thereunder shall at the time of making water-right application of entry, as the case may be, pay into the reclamation fund five per centum of the construction charge fixed for his land as an initial installment, and shall pay the balance of said charge in fifteen annual installments, the first five of which shall each be five per centum of the construction charge and the remainder shall each be seven per centum until the whole amount shall have been paid. The first of the annual installments shall become due and payable on December first of the fifth calendar year after the initial installment: **Provided**, That any water-right applicant or entryman may, if he so elects, pay the whole or any part of the construction charges owing by him within any shorter period: **Provided further**, That entry may be made whenever water is available, as announced by the Secretary of the Interior, and the initial payment be made when the charge per acre is established.

Act shall apply to existing projects.

"SEC. 2. That any person whose land or entry has heretofore become subject to the terms and conditions of the reclamation law shall pay the construction charge, or the portion of the construction charge remaining unpaid, in twenty annual installments, the first of which shall become due and payable on December first of the year, in which the public notice affecting his land is issued under this Act, and subsequent installments on December first of each year thereafter. The first four of such installments shall each be two per centum, the next two installments shall each be four per centum, and the next fourteen each six per centum of the total construction charge, or the portion of the construction charge unpaid at the beginning of such installments.

Penalties

"SEC. 3. That if any water-right applicant or entryman shall fail to pay any installment of his construction charges when due, there shall be added to the amount unpaid a penalty of one per centum thereof, and there shall be added a like penalty of one per centum of the amount unpaid on the first day of each month thereafter so long as such default shall continue. If any such applicant or entryman shall be one year in default in the payment of any installment of the construction charges and penalties, or any part thereof, his water-right application, and if he be a homestead entryman his homestead entry also, shall be subject to cancellation, and all payments made by him forfeited to the reclamation fund, but no homestead entry shall be subject to contest because of such default: **Provided**, That if the Secretary of the Interior shall so elect, he may cause suit or action to be brought for the recovery of the amount in default and penalties. But if suit or action be brought, the right to declare a cancellation and forfeiture shall be suspended pending such action or suit.

Increase of Charges

"SEC. 4. That no increase in the construction charge shall hereafter be made, after the same have been fixed by public notice, except by agreement between the Secretary of the Interior and a majority of the water-right applicants and entrymen to be affected by such increase, whereupon all water-right applicants and entrymen in the area proposed to be affected by the increased charge shall become subject thereto. Such increased charge shall be added to the construction charge and payment thereof distributed over the remaining unpaid installments of construction charges: **Provided**, That the Secretary of the Interior, in his discretion, may agree that such increased construction charge shall be paid in addi-

tional annual installments, each of which shall be at least equal to the amount of the largest installment as fixed for the project by the public notice theretofore issued. And such additional installments of the increased construction charge, as so agreed upon, shall become due and payable on December first of each year when the final installment of the constuction charge under public notice is due and payable: **Provided** further, that all such increased construction charges shall be subject to the same conditions, penalties and suit or action as provided in section three of this Act."

OUTLINE OF LECTURE 21

Desert Land Act, 1877. Extent of claim—640 acres, price, requirements. Amended in 1891, to require residence and filing, amount reduced to 320 acres.
Amount to be expended specified.

Act of 1906 extends time if delayed by Reclamation service.

1908, chance to try again; classes of land subject to entry.
Must acquire water right.

Carey Act, 1894, reason for it, a compromise.
Provisions. Amended to make State an agent of Gen. Gov.
Relations with construction company.
Conditions for settler.

Principal provisions of the Act.

Manner of dealing with the State by the Government.
Amendment of 1896 provides for lien and final patent.

No responsibility to rest with the United States.
Difference between the original Act and the amendment.
Land reserved one year to prevent interference by settlers.

Act of 1911; Reclamation Service may deal with Carey Act settlers.

Procedure to be followed by the State. Board to be appointed.

What has been done in Colorado. What required of parties desiring to take advantage of the Act.

Who may act. Application to the U. S. by the State.

What to be done by department of interior. Contract with whom. What contract is to contain.

When State to enter into contract. Bond. Time of completion.

Notice that lands are open to settlers.

What to be done by parties wishing to settle.

Price and use of the money. Notice when ready to furnish water. Water Co. have first lien on issue of patent.

The water right is appurtenant to the land. Foreclosure. Redemption.

Reclamation Act and Carey Act compared.

LECTURE 21

About the first move made by the United States Government to reclaim the arid lands of the West was the Desert Land Act, passed in 1877 to induce individuals to go upon the lands designated as desert and to develop water for their irrigation. The Original Act provided that upon the payment of 25 cents per acre any person of the required age and being a citizen of the U. S. might file a declaration in the land office, of his intent to reclaim a tract of desert land not over 640 acres in extent by conducting water upon it within three years after the date of filing his said declaration. After the lapse of the three years he might make proof of having reclaimed the land, and pay a further amount of one dollar per acre and receive patent. The lands which might be taken under the Desert Act, while not in fact desert, were lands which would not, without irrigation, produce some agricultural crop.

In 1891 the Act was amended to require that the person making the declaration should be a resident citizen of the State or Territory in which the land was located. It was also made necessary for the applicant to file a map showing the source of the water which he proposed to bring to the land, and the character of the works he intended to construct for the purpose. Another important change was made by this amendment to the law. Under the original Act there was no specification of the amount that should be expended upon the land, but the amendment provides that at least one dollar per acre for each of the three years given to apply the water should be expended in that connection. The time for completing the reclamation was extended to four years and the amount of land that might be taken was reduced to 320 acres.

It having been discovered that in the prosecution of the work under the Reclamation Act entrymen under the Desert Land Act were being delayed in the development of their private water enterprises, Congress, in 1906, passed an Act providing that the time that an entryman was so delayed should not be counted in computing the four years given to complete his individual project. In 1908 another Act was passed, providing that any person who had previously entered upon public land under the Desert Act and had failed to prosecute his work to patent might enter upon another tract and try it again, the only restriction being that if he had sold his first claim for a valuable consideration he was barred from making the second entry.

The following classes of lands are not subject to entry as desert land:

First, lands bordering upon streams, lakes, or other natural bodies of water, or through which or upon which there is any river, stream, arroyo, lake, pond, body of water, or living spring, until the clearest proof of their desert character is furnished.

Second, lands which produce native grasses in sufficient quantity, if unfed by grazing animals, to make an ordinary crop of hay, in usual seasons.

Third, lands which will produce an agricultural crop of any kind, in amount to make the cultivation reasonably remunerative.

Fourth, lands containing sufficient moisture to produce a natural growth of trees.

Before the entryman could secure patent to his land he must acquire a water right sufficient to water his land. This he may do by direct appropriation from the natural stream, or he might purchase the right from another person. He might take stock in a corporation organized to appropriate water and sell to others. He might sink an artesian well; any legal method by which water could be put on the land would suffice. Of course, in acquiring

his water right he must proceed in compliance with the laws of the State in which he is working.

In August, 1894, Congress passed the Act which from the name of its author, Senator Carey of Wyoming, is called the Carey Act.

For some years the Western States had been demanding that the United States turn over to the respective States the public lands lying within their borders, in order that they might undertake the reclamation of the lands. Congress had been slow to act in the way of pledging the general Government to any policy of reclamation, and the development of the West demanded that some steps be taken to promote that work.

The Carey Act came as a compromise; it provided for the turning over to the States certain amounts of land which they might undertake to develop, upon their complying with certain conditions. When the Act was passed few of the States were in position to avail themselves of its provisions. They had no money to undertake the construction of extensive works made necessary by the Act, and under their constitutions they were not permitted to lend their credit to private concerns which might be willing to undertake the work. This condition led to the amendment of the original Act so as to enable the States to act as agents of the General Government, and to authorize them to make contracts with individuals or corporations who would furnish the financial assistance necessary for the construction of the works, and at the same time secure the parties furnishing the money. The amended Act allows the construction company to mortgage its equity in the project, to issue bonds, or to assign its contracts with the settlers for the purchase of the water right. The only conditions imposed upon the settlers are that they shall occupy, improve, and cultivate the land entered by them, until they secure their patents, which they may obtain at any time that they are able to show that the lands have been so occupied, improved, and cultivated,

and by paying the balance due the State. They must keep up their annual payments with the construction company, and the company is given a lien upon the land until the water right is fully paid for.

The amount of land reclaimed under this Act was, in 1910, 288,553 acres. The enterprises capable of irrigation; under this Act is given in the Census of 1910 as 1,089,677 acres; the acreage included in enterprises completed or under construction is given for the same year at 2,573,874 acres.

Some of the most important provisions of the Carey Act with the amendatory Act are as follows:

"Sec. 4. That to aid the public land States in the reclamation of the desert lands therein, and the settlement, cultivation, and sale thereof in small tracts to actual settlers, the Secretary of the Interior, with the approval of the president, be and hereby is, authorized and empowered, upon proper application of the State to contract and agree, from time to time, with each of the States in which there may be situated desert lands * * * binding the United States to donate, grant, and patent to the State free of cost for survey or price such desert lands, not exceeding one million acres in each State, as the State may cause to be irrigated, reclaimed, occupied, and not less than 20 acres of each 160 acre tract cultivated by actual settlers, within ten years next after the passage of this Act, as thoroughly as is required of citizens who may enter under the desert land law.

"Before the application of any State is allowed or any contract or agreement is executed or any segregation of any of the land from the public domain is ordered by the Secretary of the Interior, the State shall file a map of the said land proposed to be irrigated which shall exhibit a plan showing the mode of the contemplated irrigation, and which plan shall be sufficient to thoroughly irrigate and reclaim said land and prepare it to raise ordinary agricultural crops, and shall also show the source of the

water to be used for irrigation and reclamation, and the Secretary of the Interior may make necessary regulations for the reservation of the lands applied for by the States to date from the date of the filing of the map and plan of irrigation, but such reservation shall be of no force whatever if such map and plan of irrigation shall not be approved. That any State contracting under this section is hereby authorized to make all necessary contracts to cause the said lands to be reclaimed and to induce their settlement and cultivation in accordance with and subject to the provisions of this section; but the State shall not be authorized to lease any of said lands or to use or dispose of the same in any way whatever, except to secure their reclamation, cultivation and settlement.

"As fast as any State may furnish satisfactory proof according to such rules and regulations as may be prescribed by the Secretary of the Interior that any of said lands are irrigated, reclaimed and occupied by actual settlers, patents shall be issued to the State or its assigns for said lands so reclaimed and settled; **Provided**, that said States shall not sell or dispose of more than 160 acres of said lands to any one person, and any surplus of money derived by any State from the sale of such lands in excess of the cost of their reclamation shall be held as a trust fund for and be applied to the reclamation of other desert lands in such States."

An important amendatory Act was passed in 1896 providing for a lien. The amendment reads as follows:

"Sec. 1. * * * That under any law heretofore or hereafter enacted by any State, providing for the reclamation of arid lands, in pursuance and acceptance of the terms of the grant made in section 4 (this is the section given above) a lien or liens is hereby authorized to be created by the State to which such lands are granted, and by no other authority whatever, and when created shall be valid on and against the legal subdivisions of the land reclaimed, for the actual cost and necessary expenses of

reclamation and reasonable interest thereon from the date of reclamation until disposed of to actual settlers; and when an ample supply of water is actually furnished in a substantial ditch or canal or by artesian wells or reservoirs, to reclaim a particular tract or tracts of such lands, then patents shall issue for the same to such State without regard to settlement, or cultivation: **Provided**, that in no event, in no contingency, and under no circumstances, shall the United States be in any manner directly or indirectly responsible or liable for any amount of any such lien or liability, in whole or in part."

You will notice that under the original Act no patent could issue until the land was actually in the hands of a settler and he had actually cultivated the land. Under the amendment, the State, upon showing that a substantial ditch or canal had been constructed, and water assured for the cultivation of certain lands, could apply for and get patent without showing actual cultivation, and the State might establish a lien upon such lands to secure the construction contractor for moneys advanced for the enterprise.

The original Act also gave ten years from the passage of the Act to complete any enterprise undertaken under its provisions. In 1901, another amendment was passed giving ten years from the approval by the Secretary of the Interior of the State's application for the setting apart of the lands.

In 1909 a still further amendment was adopted, extending to the land which had been included in the Southern Ute Reservation in Colorado, the provisions of the original act.

To prevent the complications which would arise if parties knowing of the intent of the State to apply for the segregation of certain lands under the Carey Act should rush in and make filings upon the land before the State could get in position to have the land set aside for it, an Act was passed in 1910 giving the Secretary of the

Interior the authority to set aside such lands upon preliminary notice from the State and to hold them in reserve for one year to allow the State time to make necessary surveys and selections.

In February, 1911, Congress passed a further amendatory Act to the Carey Act providing that the Reclamation service might contract for the impounding of water and the storing and the carriage of the same, and for the co-operation of this service in the construction and use of reservoirs and canals for other purposes than the reclamation service. It was especially provided in the Act that surplus water from reclamation projects might be furnished to projects constructed by individuals, corporations, associations, and irrigation districts organized for and engaged in distributing water for irrigation.

If a State wishes to take advantage of the benefits of the Carey Act, the first step is for the legislature of the State to accept the terms of the grant and to provide for taking up the reclamation work. This act of acceptance has been passed by all of the States to which the Act of Congress is made applicable. The State, through its proper officers, then enters into a contract with some responsible persons to construct the necessary irrigation works for the irrigation of a tract of land. These parties must secure a water right for the irrigation of the tract and proceed to construct works to bring the water to the land. A kind of control over the work is retained by the State by a provision that the state engineer or some board appointed for the purpose shall have supervisory control.

The State of Colorado accepted the provisions of the grant in 1895, and vested in the state board of land commissioners the selection, management and disposal of the land. It was provided in the same statute of the State that any person or association of persons wishing to construct irrigation works to reclaim land under the provisions of the Carey Act shall file with the board a request for the selection on behalf of the State of the land to be

reclaimed, accompanying the request with a proposal to construct irrigation works. The proposal must state the source of the water supply, point of diversion, place of storage, if stored, location of the works, estimated cost, price and terms at which perpetual water rights will be sold to settlers on the reclaimed lands. Individuals duly qualified, either singly or jointly, may furnish water and reclaim such land as they wish individually to own and occupy, the limit to any one person being 160 acres. Whoever makes such application, whether a company to undertake a large enterprise or a person to reclaim one quarter section, shall have filed with the state engineer an application for a permit to appropriate water for the reclamation of the land sought to be reclaimed. The application is to be examined and passed upon by the board, and in case of approval an application is filed in the U. S. land office for the withdrawal of the land. When the land is withdrawn by the department of the interior, the board is required to enter into a contract with the parties submitting the proposal, which contract shall contain specifications of the location, dimension, character, and estimated cost of the proposed ditch, or other irrigation works, and state the price and terms upon which the State is to dispose of the lands to settlers, and such other conditions and provisions as the board may direct. The contract is not to be entered into by the State until the lands have been withdrawn and the proposed contractors have put up a bond in the penal sum of five per cent. of the estimated cost of the works. The State is not to consider any proposal which requires more than five years to complete the work, and the work must begin within six months of the date of the contract, and at least one tenth of the whole work must be completed within two years of the date of the contract. As soon as the lands are withdrawn and work is commenced by the contractors the board is required to publish a notice that the lands are open to settlement, and the price and terms upon which

they will be sold to settlers. Parties wishing to settle upon the land must file application with the board and comply with certain conditions, accompanying the application with a payment of twenty-five cents per acre for the land desired to be taken. The land is to be sold to settlers for the total price of fifty cents per acre, and the money so received is to be deposited with the state treasurer, to be used for the payment of the expenses of the board and the expense of the state engineer's office so far as that office is put to expense for the carrying out of the purposes of the Carey Act; any balance of moneys remaining over is to constitute a trust fund to be used in the reclamation of other desert lands.

The settler on the land is to be notified when the construction company is prepared to furnish water, and within one year after receiving such notice he must put under cultivation not less than one sixteenth of his land, and within two years after such notice he shall have actually irrigated and cultivated at least one eighth of his land, and within three years from the said notice he must make final proof of reclamation, settlement, and occupation, showing that he has a water right for his whole body of land filed on by him; that he is an actual settler on the land, and has cultivated at least one eighth of the land and applied water to the same.

When the patent is issued on the land, either that which a settler has filed upon, or a larger body for which patent has been issued to the State, the company that has furnished water is given a first lien upon the land and water rights, for all deferred payments on the water right, the lien to remain in full force until the last payment on the water right is made.

The statute of the State makes the water right secured under the Carey Act appurtenant to the land for which it is supplied as soon as the title passes from the U. S. to the State. In case of failure on the part of the settler to pay the charges on the water right, the construc-

tion company or other person having the proper interest may foreclose the lien, and sell the land and water right at auction; no person or persons holding such lien is permitted to bid in the property at such sale at a less price than the amount due on deferred payments; the settler has the right of redemption from the sale.

It may be well to call your attention to some of the differences in the application of the Reclamation Act and the Carey Act.

You will have noticed that under the first of these Acts the settler gets no title until he has completed his water payments; he must begin to pay the first year that he is on the land and forfeits all that he has paid in case of failure to pay for two years, and he has no right of redemption. If the settler wishes to secure credit he has nothing excepting his animals and tools to give as security, and merchants are not willing to advance much on such security.

Under the Carey Act, the settler may prove up and secure title in three years. While it is true that the construction company has a first lien upon his land and water he has a valuable equity which he may use as security to carry him along until he can get started, for he has a right to mortgage that equity. In case of disaster from bad seasons, insect pests, or sickness, there is no chance for a complete freeze out of the settler, for in case of a foreclosure he has a period of redemption, and having the title to his property he is in position to borrow to prevent foreclosure. The construction company often arranges to advance the money to the settler to make a start upon his land. Under the Reclamation Act the holdings of the settler is but a prospect, which, if his health continues good, by the strictest economy he may, in the dim future, develop into a valuable claim. The holdings of a settler under the Carey Act become his property at once, an asset for which he holds the title, an asset of which he may make use to secure the credit which he so much needs at the inception of his undertaking.

OUTLINE OF LECTURE 22

State control. Each State determines its own policy.

What, in general, has been done in different states.

In most states there are constitutional provisions.

This is an exercise of the police power of the State.

Office of State Engineer is peculiar to the arid region.

Colorado first state to have public officers to distribute water.

Office and duties of state engineer :

- Measure flow of water in streams ;

- Collect data as to construction, and use of water and of snow fall ;

- Approve designs and plans.

- General supervision of other officers.

- Answer to call and be paid per diem for service.

Call for special works.

- Give wier measurements.

Additional duties in Idaho. In Montana. Work is done by a board in Nebraska.

Method of procedure to get appropriation in Nebraska.

In Nevada there is a State Board of which the engineer is a member. Procedure in Nevada.

How the service is organized in North Dakota.

How in Oklahoma. In Oregon the duties of State Engineer are limited.

Organization in South Dakota. In Utah. In Washington.

Take special care to learn the procedure in Wyoming.

In Colorado, Water Divisions and Division Superintendent.

Water Districts and Water Commissioners and their duties.

Provisions of the statute in Colorado for securing a water right.

LECTURE 22

I take up for the next subject of our discussion the laws of State control, and in the treating of this subject I shall give the law of Colorado rather fully and making this the basis of comparison shall content myself with pointing out the important differences between the law of this State and that of the other Western States.

We have already seen that each State has the power to determine its own policy regarding water, whether it will adhere to the riparian doctrine, adopt the doctrine of appropriation, or attempt a union of the two.

It may be said in general that the legislatures of many of the states of the arid West have adopted extensive irrigation codes, regulating in detail how the right to use water may be acquired and lost, and how maintained against others. The administration of the laws relative to irrigation is left in some states to a board appointed for that purpose, in others to a state engineer. In some states the board of management, or the state engineer is given judicial powers to settle questions arising under the irrigation law, while in others all judicial powers must be exercised by the regularly constituted courts of the State. The State is usually divided into divisions, and over each division is placed an officer subordinate to the board or state engineer, and below these officers are often others whose duty it is to see to the direct application and distribution of the waters of the State among appropriators according to the order of their priorities.

In nearly all of the States the State Constitution provides for the enactment of laws controlling the waters of the State.

The Constitution of Colorado reads, "The water of every natural stream, not heretofore appropriated, with-

in the State of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the State, subject to appropriation as herein provided.

"The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied. Priority of appropriation shall give the better right as between those using the water for the same purpose; but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using water for agricultural purposes shall have the preference over those using the same for manufacturing purposes.

"All persons and corporations shall have the right of way across public, private and corporate lands for the construction of ditches, canals and flumes for the purpose of conveying water for domestic purposes, for the irrigation of agricultural lands, and for mining and manufacturing purposes, and for drainage, upon payment of just compensation.

"The general assembly shall provide by law that the board of county commissioners in their respective counties, shall have power, when application is made to them by either party interested, to establish maximum rates to be charged for the use of water, whether furnished by individuals or corporations."

The constitution of the State of Idaho has a provision not found in the constitution of Colorado:

"The right to collect water rates or compensation for the use of water supplied to any county, city, or town, or water district, or the inhabitants thereof, is a franchise and cannot be exercised except by authority of and in the manner prescribed by law."

The power of a state legislature to enact laws for state control and the government of waters flowing with-

in its boundaries and the regulation of their use comes strictly within the police power of the State, which is an exalted branch of sovereignty, it is the authority to establish such rules of good conduct as are calculated to prevent a conflict of rights and to insure to each owner of a right the uninterrupted enjoyment of his own so far as reasonably consistent with the corresponding enjoyment by others of their rights. The Court of Colorado, referring to the exercise of supervision over water rights, says, "Such an act is the proper exercise of the police power of the State to prevent personal conflicts by treating the decrees rendered in the several districts as prima facie correct, and regulating the distribution of water accordingly, until the rights of the parties can be adjudicated." "This Court has repeatedly held that statutes having this object may be enacted in the exercise of the police power of the State." In still another case, the same Court stated the doctrine as follows, "The laws of the State providing for officials to distribute the waters of our streams for agricultural uses according to adjudicated priorities, were passed for the purpose of securing an orderly distribution of such waters and to prevent breaches of the peace which would inevitably ensue if the owners of priorities were permitted to divert and divide the waters of our streams according to their ideas of their adjudicated rights and needs. These laws must be strictly enforced and observed, and the Courts have no power to annul them."

Under the police power of the State, the legislature has provided for the punishment of the unlawful interference with water rights, the waste of water, or the obstruction of the work of the officials in the performance of their duties.

The office of state engineer is not known in states outside of the arid region. It is an office made necessary by the peculiar conditions arising from the use of water for beneficial uses under the law of appropriation.

The first State to provide for the distribution of water by public officials was our own State, Colorado, and the state engineer is placed at the head of the system. The office was created in 1881, and the engineer was given general charge of the distribution of water throughout the State. He has no judicial powers, it being necessary to refer all questions of law to the courts of the state. He is strictly an administrative officer, and his duties are confined to the general supervision of the distribution of waters after the rights have been determined by the Court. The statute of the State provides that he shall make careful measurements of the flow of the public streams of the State, from which water is diverted for any purpose, and compute the discharge of such streams, and collect all necessary data and information regarding the location, size, cost and capacity of dams and reservoirs to be constructed, and similar data regarding the feasibility and economical construction of reservoirs on eligible sites, of which he may obtain information, and the useful purposes for which the water from the same may be put. He is, also, to collect data concerning the snow-fall in the mountains each season, in order to be able to predict the probable flow of water in the streams of the State, and publish such data.

The engineer is to approve the designs and plans for the construction and repair of all dams or reservoir embankments built within the State, with a vertical height of ten feet or over.

He has general supervision of the division superintendents and water commissioners of the State, and is to furnish them with all data and information necessary for the proper and intelligent discharge of their duties, and require of them annual statements of the amount of water diverted from the public streams in their divisions and districts.

He is required when called upon by any party interested and when his per diem expenses are paid, to ap-

point a deputy to measure, compute and ascertain all necessary data of any canal, dam, reservoir or other structure, as required or as may be desired to establish Court decrees, or for filing statements, in compliance with law, in the county clerk's records.

He may require the owners of any ditch, canal, or reservoir to construct and put in place, under his supervision, any wier or other measuring device for measuring the flow of water at the head of a ditch, canal, or reservoir to permit of the carrying into effect of any decree of the Court.

He is required, also, to compute, and arrange in tabular form, the amount of water that will pass such a weir or measuring device at different stages, and to furnish a copy of the same to any superintendents or commissioners having control of the ditch, canal or reservoir.

In Idaho the state engineer is required to examine plans submitted under the law and to determine whether they are feasible and beneficial to the public. A person wishing to acquire the right to the use of any waters of the State must make an application in proper form to the state engineer. In Colorado the engineer merely receives and files in his office maps and plans of proposed appropriations, he has no power to decide whether the appropriation is feasible or desirable; that is left to the party wishing to undertake the enterprise.

In Idaho the state engineer is not the sole head of irrigation matters of the State; he is a member of a board of irrigation. Neither the engineer nor the board have judicial powers.

The state engineer of Montana has very limited powers; his duties are limited to the examination of state lands to determine whether they can be irrigated, and to the examination and measurement of the streams of the State. He is required to examine lands applied for under the Carey Act and determine whether their reclamation is feasible. He has no judicial powers.

In Nebraska there is a Board of irrigation, which elects a secretary, who must be a hydraulic engineer, and who is commonly called the state engineer. He performs the duties ordinarily performed by that officer. A person wishing to appropriate water from a public source of supply must file an application with this secretary-engineer, who may refuse to grant it if there is no unappropriated water in the source from which the party proposes to take his water, or if it is deemed detrimental to the public welfare. Right of appeal is given to the district Court from the decision of the engineer. The Act of the legislature makes no provision for the adjudicating of water rights, and the matter is left entirely to the Board thus they have full judicial powers in such cases.

In Nevada the state engineer is a member of the State Board of Irrigation, and has very large powers. He has general supervision of the distribution of the waters of the State. Application for permission to file upon waters of the State must be made to him, and written protests against the granting of the application may be filed by other parties. The engineer may in his discretion take evidence, or refuse to do so, and then take whatever action he deems proper and just.

The powers of the state engineer in New Mexico are very similar to those in Nevada.

In North Dakota there is a state engineer, there are also four water commissioners appointed by the governor. The engineer issues licenses to appropriate water, and the commissioners have the control of the distribution of water, in accordance with the licenses issued by the engineer. All judicial powers are lodged in the Courts.

In Oklahoma there is no state engineer, the secretary of the State Board of Agriculture being required to perform the duties of such officer, but he has the right, by and with the consent of the governor, to temporarily employ the services of a technically qualified and experi-

enced engineer for the purpose of examining and determining upon professional engineering questions.

The duties of the state engineer in Oregon are confined almost entirely to the making of hydrographical and topographical surveys. He has no power over the distribution of the water, but with two water division superintendents he forms a board of control to supervise the appropriation, diversion and distribution of water.

In South Dakota the state engineer, with the water commissioners under him, has complete supervision of the distribution of the waters of the state; application must be made to him for the right to appropriate water and he has the power to approve or reject the application. He has no judicial powers.

In Utah the state engineer is at the head of the water system of the state. His powers are very similar to those of the state engineer in Colorado, with the additional power to approve or reject applications for the right to appropriate water, but appeal from his decision may be taken to the district court. The engineer has no judicial powers.

In the state of Washington there is no state engineer, or was not prior to the year 1911; in that year a bill was introduced in the legislature providing for such an officer, but I am not informed that that law was ever enacted.

The state of Wyoming was the first to adopt a complete system of state control of waters. In that state the engineer is given complete supervision and control of the waters of the state, through and with the assistance of division superintendents and water commissioners. A person wishing to acquire a water right, before he commences construction, makes application to the state engineer, who is authorized to refuse to grant the application if there is no unappropriated water remaining in the source of supply from which the applicant proposes to take water.

Each of the streams of the state is required to be

measured as to the amount of water that it can be relied upon to furnish. This amount is charged to the stream, and each appropriation from the stream is credited to it, so that the balance of the account shows at any time whether there remains in that stream any unappropriated water. The applicant is required to show his financial ability to carry out his proposed project. The engineer is the president of the State Board of Control. This board is given full judicial power to determine existing rights. This function, in Colorado must be performed by the Courts of the state. It will be seen from what has been given that in the different states the powers of the state engineer vary from the mere making of surveys to complete control of the entire water system of a state, even to the exercise of the powers of a Court. Whether the granting of such full power to one man works to the securing of complete justice between citizens must depend much upon the character of the man who chances to be elected to the office.

In Colorado, the legislature has divided the state into a number of sections known as water divisions, and each of these divisions is presided over by a division engineer, or, as he is sometimes called, a water superintendent, who is appointed by the governor, on competitive examination. These officers are under the direction of the engineer and have the direct control of the waters of their division. There are four division superintendents in Wyoming and they with the engineer, form the board of control.

Appointed by the governor and acting under the division engineers are still other officers in Colorado, known as water commissioners. These officers have the direct superintendence of a certain stream to see to the distribution of its waters to appropriators according to their ranking priorities and the size of their appropriations. The water commissioner is furnished by the state engineer with tabulated statements of the appropriations charged to his stream, their order and amount, and it is

his duty to see that all who are entitled to water from that source are protected in their rights to water. In Colorado, the territory presided over by a water commissioner is known as a water district, and is determined by the legislature. In some of the states the state engineer divides the state into water districts.

The nature of the duties of the water commissioner, bringing him, as they do, into contact with the actual consumers of the water throughout the irrigating season, call for a more frequent exercise of the police power of the state than is necessary from the state and division engineers, though these, too, exercise that power.

The provisions of the statute of Colorado relative to the manner of proceeding to secure a water right are as follows:

“Every person, association or corporation, hereafter constructing or enlarging any reservoir or reservoirs, constructing, changing the location of, or enlarging any ditch, canal, or feeder for any ditch or reservoir, for the purpose of furnishing a supply of water for domestic, irrigation, power or storage, or for any other beneficial use, taking water from any natural stream, shall, within sixty days after commencing the construction, change of location or enlargement, make filings in the office of the state engineer for each specific claim, in such form as shall seem sufficient and satisfactory to the state engineer, and accompanied by the proper fees, as provided by statute, two duplicate copies, on tracing linen, or other material adapted for permanent record and preservation, as may be required by regulation of the state engineer, of a map, made with permanent ink, showing the point of location of the headgate, the route of such ditch or canal, or the high-water line of such reservoir or reservoirs, and the route of the feeders to, and ditches or canals from, such reservoir or reservoirs, the legal subdivisions of the land upon which such structures are built or to be built, if on surveyed lands, the names of the

owners of such lands, and such courses, distances and corners by reference to legal subdivisions, if on surveyed lands, or to natural objects, if on unsurveyed lands, as will clearly designate the location of such structures."

"Upon or attached to such maps shall be duplicate statements, showing in the case of any ditch, canal or feeder:

First—The point of location of the headgate of the proposed structure.

Second—The depth, width, grade, length of each ditch, canal, or feeder proposed.

Third—The carrying capacity of each ditch, canal or feeder in cubic feet per second.

Fourth—The time of commencement of work on such structures, which time may be the date of the commencement of the surveys therefor, or of the commencement of actual construction.

Fifth—The estimated costs of the proposed project.

"In cases when filings are made upon reservoir sites the statements shall show the height of the proposed dam, the estimated cost, with the capacity in cubic feet and the surface area for each foot in depth of water stored, up to and including the high-water mark."

"Such statements shall be signed by the person or persons in whose behalf they are made, or, in cases where an association or a corporation are the parties interested, the signature shall be the legal title of such association or corporation, signed by some duly authorized agent or officer, who shall also sign his own name, giving his official title, and the truth of the matters shown in such maps and statements shall also be sworn to by the engineer in charge, or person making the survey, before some officer legally qualified for the administration of oaths."

"The state engineer shall examine the duplicate maps and statements, and if he shall find the data therein contained to be sufficient and satisfactory for a clear pre-

sentation of facts concerning the claims made, he shall file one of the maps and statements in his office, and shall return the duplicate map and statement to the claimant with a certificate, stating that it has been examined and approved by him, and that it is a duplicate of the copy filed in his official records, and this duplicate copy shall within ninety days, from the time stated as the date of commencement, be filed by the claimant in the office of the county clerk and recorder in which the headgate of the proposed structure, or in which the proposed reservoir shall lie."

We may now take a general survey of the methods adopted in the several states and observe wherein they differ from the method here shown to be used in Colorado for the initial steps of an appropriation.

OUTLINE OF LECTURE 23

Two methods of **adjudicating** water rights.

Colorado method party goes into court at once.

Wyoming method, he commences before a public officer and appeals if not satisfied.

. Application for permit is not an appropriation—it merely gives a record.

Note difference in Colorado and Wyoming. Facts to be shown in application.

In some states, engineer publishes notice—notice contains what.

. Use of water outside of state.

Value of permit—it is property and may be sold.

Fixing of time to complete work.

Certificate of completion—numbered—effect.

Actual use required to make appropriation.

Result of failure to prove completion within time. Illustration.

Diversion and use constitute appropriation; other requirements are intended only to preserve record.

What is point of diversion?

Change of point of diversion. Colorado statute on this point.

Petition in District Court;

Court requires proof that all who may be affected have been notified, and, if satisfied, will, on proper evidence, issue decree granting change.

What petitioner is then to do.

Exchange of water. Statute of Colorado on this point.

Exchange allowed if no one is injured.

Exchange and loaning in times of scarcity—Note that this is a different subject from the one just discussed.

Change of point of diversion in other states—note differences.

Law of Colorado as to division of water in times of scarcity.

Appropriations of different dates in same ditch pro rate separately.

Rights of others always to be respected.

The Wright law in California, providing for irrigating Districts. Do not confuse water districts with irrigation districts.

LECTURE 23

It will be noted that there are two distinct methods adopted in different states for the adjudicating of water rights; in Colorado and the states which have copied her method the case is brought at once into the district court where testimony is taken and a decree given in accordance with the facts shown, and this decree is the basis of an appropriator's right and establishes the amount of water to which he is entitled and the date of his priority. The other method is known as the Wyoming method. This provides for the bringing proceedings before some public official as the state engineer, or a board of control, with a right to appeal from the decision there given, to the courts.

The filing of an application with the state engineer for a permit to appropriate water does not in itself constitute an appropriation when granted. The only real value of such an application is to create a record by which the date of the inception of the work may be established in case of a contest over the question of priority. This is made clear by the language of the Utah Court, "The filing of the application with the state engineer, as required by the statute, does not establish an appropriation of water. It but takes the place of, and is the preliminary notice of intention to appropriate."

A noticeable difference between the Colorado and the Wyoming method is in the fact that in Colorado the work of appropriation is commenced, usually by making preliminary surveys, and the application is made to the state engineer within sixty days after such commencement of work, while in other states the application must be made first and no work done before its approval by the engineer.

The facts that are to be shown in the application are the name and address of the applicant; the nature of the proposed use of the water; the quantity of water proposed to be taken; the time during which it is to be used in each year (this is not required in Colorado); the name of the source of supply from which the water is to be diverted; the place of diversion; the dimension, grade, shape, and nature of the works to be constructed, and whatever facts may be necessary to clearly make known the character of the proposed appropriation.

In some of the States the State engineer is required upon approving an application to publish a notice in some paper giving the main facts set forth in the application, and parties wishing to do so are given a stated time in which to file protests against the granting of the application. In Colorado this is not done but after a person has constructed his works, if other parties think he is infringing their right, they may come into Court and have the question decided.

In some States the engineer, when an application is made to him, is required to pass upon the question of whether the carrying out of the project for which application is made, will be against the public policy, and to deny the application if he believes it is.

In some instances application is made to the state engineer for permit to appropriate water in the state for use outside of the state, and some states refuse entirely to grant such an application, others, as Oregon adopt a policy of reciprocity and instruct the engineer to grant no such application unless the State in which the water from Oregon is to be used will grant applications to allow water from its supply to be appropriated for use in Oregon.

The permit granted by the state engineer is usually merely an endorsement upon the application which is returned to the applicant. It only stands as a permission from the State to proceed to make his appropriation. A permit is property, and may be sold or assigned like other

property, and the party to whom they are assigned may proceed as the original applicant might have done to complete the appropriation. The statutes in nearly all of the states fix a time within which proposed irrigation works must be completed, and failure to complete within such time is treated as an abandonment. In some of the States the appropriator is called before the engineer to show cause why his permit should not be cancelled.

In Colorado there is no showing made from the office of the State engineer as to the completion of the work, but in other States the appropriator is required to make a showing that he has completed the work required to bring the water to the place of use, and the engineer upon such showing issues a certificate of completion, which sets forth the full details of the appropriation as originally applied for. These certificates are numbered according to the date of the original application, and this serves to retain the priority of the appropriation, which, under the doctrine of relation, is the date of the filing of the original application. In some of the States the completion of the work is taken as the consummation of the appropriation, but as actual use is the true test of an appropriation, the certificate of appropriation is not issued until the water is actually applied to a beneficial use. The diversion may be made from the stream, the headgate constructed, the ditches completed and all be done to make it possible to apply the water to the land, but until it is so applied there is no appropriation, and the appropriator having done all but apply the water may, by delay in its application, fail to make an appropriation. As said by the Utah Court, "He may not file his application, construct his works, and then hold the water and wait for something to happen. He cannot withhold the water from the proposed beneficial use. He must not only be diligent in constructing the works, and in making the diversion, but he must also be reasonably diligent and expeditious in making application of the water to the beneficial use for which the

appropriation was proposed, else he loses his inceptive right. His appropriation will be measured by the quantity of water actually used for the proposed beneficial purpose." Several of the States have statutes fixing the time within which the water must be put to use, and a failure to make proof of the use within such time causes the date of appropriation to be changed from the time of the approval of the application to the date when actual use is shown to have been made. To illustrate, suppose Mr. A. applies for permit and it is approved on January 1st, 1900, and he has six months in which to complete his works and make beneficial use of the water. If he does do this his priority will date from January 1st, 1900, and all appropriators whose applications were approved later than that date will be considered as junior to him in appropriation. But if he does not complete his works and apply water by the 1st of July, 1900, his priority will date from the time he does apply the water, suppose it to be September 1st, 1900, and all appropriators whose applications were approved after January 1st, 1900 and before September 1st, 1900, would be senior to him in priority.

In an earlier part of these lectures the statement was made that throughout the arid West if a person actually diverts water from a public source and applies it to actual beneficial use, such diversion and use would be recognized as a good appropriation without further formalities. The discussion just closed would seem to deny or modify that statement. It will be seen upon carefully reading the statutes of the various States that none of them prohibit the making of an appropriation by actual diversion and use, and it is not the intention of the legislature of any state to defeat an honest attempt to acquire the right to the use of water. The making of application, and the securing of approval and permit from the state engineer is intended to secure a record so that actual, bona fide appropriations may be protected, and if a person has constructed his works and applied water before the applica-

tion is made, he will, in all probability, be protected in his priority as of the date of actual use. The declarations in many of the State Constitutions that "priority of appropriation for beneficial uses shall give the better right," and "as between appropriators, the one first in time shall be first in right," can have no other meaning. In the Federal Court it was held that actual diversion and use is as much notice to later comers as the statutory notice or the application for a permit under the laws of State control. The subject is so fully and clearly covered by the Court of Idaho in a very recent opinion that I take the liberty to make a rather long citation. "It has never been the intention, so far as we are advised, of the legislature to cut off the right an appropriator and user of water may acquire by the actual diversion of the water and its application to a beneficial use. This constitutes actual notice to every intending appropriator of the water of such a stream. It is like a man being in actual possession of realty; indeed, a water right is realty in this State, the legislature has provided, however, for a constructive notice, to those who avail themselves of the statute and with this notice there is given a certain period of time in which to commence the construction of diverting works and a further period of time in which to complete such works, and divert the water and apply it to the beneficial use for which the application was made. This is a protection to the claimant; but if he should actually divert the water and apply it to a beneficial use, before the rights or interests of any other person intervene, he would be entitled to the protection of the law in the use and enjoyment of the right thus acquired. He would then be in actual possession of the property to the extent of the diversion and use, and to that extent would need no protection from a constructive notice which a compliance with the statute affords."

The point of diversion, it will be remembered, is that place on a public stream at which the water is withdrawn

for any irrigation enterprise. It not infrequently happens that because of a change in the current of a stream, the formation of bars in the stream, or from other causes, a person wishes to change his point of diversion, to put the head of his ditch further up or further down the stream. This most frequently occurs in the case of the purchase of the rights of one appropriator by another when it becomes desirable to take the water from the river at the headgate of the purchaser instead of at the headgate of the seller where it has been customary to take it. Such a change may so affect the flow of the water in a stream as to materially interfere with the rights of others, and to prevent this, statutes have been passed in the various States regulating such changes.

“Every person, association, or corporation desirous of changing in whole or in part the point or points of diversion of his or its rights to use water from any of the streams of the state, shall present a petition to the district court from which the original decree issued, whether the change be from one district to another or not; praying that such change be granted * * * “The court shall require proof that all parties that may be affected by the change have been duly notified in the proceeding * * * and shall hear evidence as to whether such change will injuriously affect the vested rights of others in and to the use of water, and a decree shall be entered permitting the change as prayed for, unless it appear that such change will injuriously affect the vested rights of others; and if such injury appear the court shall decree the change only upon such terms and conditions as may be necessary to prevent such injurious effect, or to protect the parties affected or if impossible to do so, may deny said application.

“Upon granting a decree of change, the petitioner desirous of making the change shall cause to be prepared certified copies of the decree, and shall cause filings thereof to be made with the county clerk of the county in which

the original point of diversion is located, and with the county clerk of the county in which the new point of diversion is, or is to be, located, and also in the office of the state engineer."

Indirectly connected with the subject of change of diversion is that of exchanging water between different appropriators. The statute of Colorado provides that, "When the rights of others are not injured thereby, it shall be lawful for the owner of a reservoir to deliver stored water into a ditch entitled to water or into the public stream to supply appropriators from said stream. and take in exchange therefor from the public stream higher up an equal amount of water, unless a reasonable reduction for loss, if any there be, to be determined by the state engineer; **Provided**, That the person or company desiring such exchange shall be required to construct and maintain under the direction of the state engineer measuring flumes or weirs and self-registering devices at the point where the water is turned into the stream or ditch taking the same or as near such point as is practicable so that the water commissioner may readily determine and secure the just and equitable change of water as herein provided."

"It shall be lawful for the owners of ditches and water rights taking water from the same stream, to exchange with, and to loan to, each other, for a limited time, the water to which each may be entitled, for the purpose of saving crops or of using water in a more economical manner; **Provided**, that the owner or owners making such loan or exchange, shall give notice in writing, signed by all the owners participating in such loan or exchange, stating that such loan or exchange has been made, and for what length of time the same shall continue, whereupon said water commissioner shall recognize the same in his distribution of water."

In many of the States the proceeding for the change of point of diversion is had before the state engineer. Ap-

plication is first filed with the engineer by the person desirous to make the change. The engineer then publishes a notice giving in detail the information which we have seen to be required in Colorado when filing the case in court. Any person interested is given an opportunity to protest against the granting of the application. The engineer proceeds to hear testimony and must then either approve or reject the application. Provision is usually made in the statute for an appeal from the decision of the engineer in such cases to the courts.

Whether the hearing is had before the court or before the engineer, if the petition is granted a decree is rendered by the presiding tribunal, after which the petitioner has the right to proceed with the change.

In Colorado there is a statute providing that in times of scarcity of water when the entire appropriation belonging to a ditch is not available the water that can be had is to be distributed among the stockholders of the ditch in the ratio of their holdings of the stock of the company, so that each may suffer proportionately from the shortage. When, however, two ditches are consolidated which have priorities of different dates the stockholders claiming under each appropriation are to pro rate separately. That is, suppose ditch A with priority dating from 1875 to be consolidated with ditch B which has priority dating from 1880, both taking from the same stream. It is evident that when the river falls ditch B will be shut off before ditch A. In that case the stockholders who have been accustomed to use from the appropriation of ditch B cannot ask the stockholders of ditch A to divide their water with them, unless in the formation of the consolidation some agreement to that effect has been made.

It may not be out of place to repeat here what has been so often insisted upon in these lectures, that in dealing with water rights and privileges there is one fundamental principle that must never be lost sight of, that in

all of his conduct an appropriator must so conduct himself as to avoid any interference with the equal rights of others.

For quite a number of years after the beginning of irrigation in our Western States the water supply was amply sufficient for all comers and those who desired to undertake this method of farming found lands lying close to the streams well adapted to their purpose. Short ditches which could be constructed by individuals with small capital served to bring the water to the land, and rather temporary, wooden structures served the purpose of diversion works. When, however, the lands near the streams had been reduced to private ownership, and to reach the more distant lands longer ditches, more permanent construction, and more careful supervision became necessary, the amount of capital required was beyond the ability of private individuals to provide. We have seen how the General Government, by the passage of the Desert Land Act, the Reclamation Act, and the Carey Act, sought to meet the emergency, and we have seen how the actual consumer under all of these plans is made to bear large and apparently avoidable expense, and to take risks which from the start threaten disappointment and ultimate failure.

In 1887 there was passed in California a law known as the Wright law which provided for the organization of Irrigation Districts. As the line marked out by that law has been followed in our own as well as many other States we may well spend a few hours in discussing the merits and demerits of the system.

In the treatment of the subject of State control, I have shown how under the state engineer there are water divisions, and within the water divisions, water districts. You are not to confuse the expression Water District as there used, with the Irrigation Districts here spoken of; they have no relation to each other.

The purpose of the Wright law is well expressed in the language of the Court in a case in California, ('The

whole object of the legislation," says the Court, "authorizing the organization of irrigation districts is to enable the owners of lands susceptible of irrigation from a common source and by the same system of works, to form a district composed of such lands, which district when formed is a public corporation for the sole purpose of obtaining and distributing such water as may be necessary for the irrigation thereof, thus enabling each one to have for his land in the district the benefit of a common system of irrigation and bringing about the reclamation of the land of the district from aridity to a condition of suitability for cultivation. It was recognized that without such a common system the individual land owners might be unable to obtain water for the irrigation of their lands, and that a work which would be for the public benefit and general welfare, viz., the reclamation from aridity of large portions of the lands of the State might never be accomplished if left to individual enterprise.")

Owing to a long period of litigation over the constitutionality of the Wright law, it was many years before marked results of its operation were noticeable, but after all such questions were finally settled in favor of the law, and after various changes which experience had shown to be desirable in the law, several large enterprises have been carried to completion with marked success.

Some of the features of the irrigation district system may be mentioned, as, first, all of the rights in a common source of supply of water come under one management and control by a public corporation, whose officers are elected by the votes of the people residing in the district. This makes every citizen of the district to some extent responsible for the success of the enterprise, and hence a more interested actor in its working. Second, just as all of the property in a school district is taxed for the support of the school, whether the property owner has child-

ren or not, so all of the lands in the irrigation district is taxed to carry on the work of the district, whether the land owner irrigates or not.

OUTLINE OF LECTURE 24

Features of Wright law continued.

Provisions of the Colorado law.

First steps by residents; file petition with County commissioners—what petition shall state.

Duty of commissioners. Mark out boundaries. Call election. Who has right to vote. Who canvass vote. Issue order declaring organizing of district. Make map.

Business of the district is now in the hands of the board.

Powers and duties of the board. Distribution how apportioned. Meetings of the Board.

Procedure of the Board to raise money. For what purpose they may raise money. Election. Sale of bonds. How secure money to pay the debt. Annual estimate of money needed to run district.

Spread on the assessment roll of the county.

Tax becomes a lien upon the land. Personal property not taxed for this purpose.

If not enough water is secured how to distribute what is available.

Land admitted to and let out of district.

Affect of withdrawal; not escape tax after issue of bonds.

Definition of Irrigation District.

Public corporation and municipal corporation distinguished.

Drainage law.

LECTURE 24

Continuing the discussion from the point at which we left off at our last meeting; a third feature claimed for the irrigation district system is that the increased value that is brought to the lands within the district by the development of a system of irrigation is an ample compensation for the increased taxation necessary to develop the system. Men having large tracts of land have been compelled to sell off portions at first at a low price in order to avoid the large total of taxes which they would have to pay, but the remaining land has sold for so much higher prices as to make a large absolute gain in the end. Perhaps the most important feature of the system which emerges upon consideration is the greatly reduced cost to the settler. Large enterprises undertaken by private capital naturally look for a comfortable profit on the amount invested, and this profit naturally comes out of the pockets of the consumers of the water. Government enterprises are carried on through a large corps of clerks and field-men, and others all of whom must get their pay out of the enterprise, and all this must be paid by the water user. The irrigation district, on the other hand, is not to create a money profit for any person beyond the interest paid on bonds issued by the district.

Utah was the first country to pass an irrigation district law, which she did in the year 1865, but the law was not adequate to the purpose for which it was enacted and little was done under it to develop irrigation. The first law which furnished a real acting basis was the Wright law of California, passed in 1887. This law was amended at each session of the legislature for twelve or fifteen years after its adoption and finally a system was evolved which has been copied in whole or in part by every State which

has taken up this method of irrigation development. As the course of procedure is nearly the same in all of the states, it will be sufficient to give rather fully the law of our own State and to point out important differences, where they occur, in the law of other States.

Instead of citing the law of Colorado literally, I shall give an abstract of its provisions, covering only those features with which we are here interested.

(The law provides that whenever a majority of the resident freeholders of a district owning lands therein desire to provide for the irrigation of the lands in such district, they may propose the organization of an irrigation district. When a district is formed according to law it may buy up the ditches and water rights already existing in the area included in the district, if arrangements can be made so to do with the owners. If such rights are not bought by the district, they are not affected by the fact of the formation of the district; they go on as they were accustomed to do before such district was formed.

Having determined to form a district, the first thing for the people to do is to prepare a petition and file it with the county commissioners of the county in which the greater part of the land to be included in the district lies.

The petition must state that the signers wish to form an irrigation district in accordance with the law, and give a general description of the boundaries of the proposed district, how it is proposed to water it, the name to be given to the district, and the persons making the petition must name in it three of their number as a committee to present it to the commissioners. The petition asks that the board of commissioners establish the bounds of the district, and that they submit the question of final organization to a vote of the people of the district. The petition must be signed by a majority of the resident freeholders of the proposed district, who are owners in the aggregate of a majority of the lands therein. §.

The petition having been presented and found regular

in all respects, the commissioners proceed to mark out the boundaries of the district. Parties whose lands have been included in the proposed district may appear, if they so desire, and show why their lands should not be so included, and those whose lands have been omitted may also appear and ask that their lands be included.

The commissioners then proceed to call an election of the qualified electors of the district to determine whether the district shall be organized. You will observe that all of the steps taken in this whole matter are taken by the people, either personally or through their representatives.

For the purposes of the election the district is divided by the commissioners into three as nearly equal divisions as possible, each division to be an election precinct.

The officers of the district are to be three directors, a secretary and a treasurer.

Electors residing in the district are entitled to vote, and those not residing in the district, if voters in the State, may vote in that division of the district in which they have the largest tract of land, if they have paid a property tax within the district during the last year.

The county commissioners canvass the vote and if a majority have voted in favor of forming the district, they prepare an order declaring the district to be organized, and also prepare a map of the district which with the order just mentioned is filed for record in the office of the county clerk of each county into which the district extends.

The district is now in the hands of the people and under the management of the officers whom they have elected. These officers hold office for one year, and an annual election is provided for. The directors having been duly elected and qualified meet and organize by choosing one of their members as president, and the appointment of a secretary. The board of directors have power under the law to adopt a seal, to manage and conduct the affairs and business of the district, to make and execute all

necessary contracts, to employ such agents, attorneys, officers and employes as may be required, and to prescribe their duties, to establish equitable rules and regulations for the distribution of water and the use thereof among the owners of the land within the district, and generally to perform all acts necessary to carry out the intention of the law.)

You will remember that at the time of presenting the original petition to the county commissioners a statement was required as to where the water was to come from for watering the district. (The district board have power not only to secure the water there proposed, but they may construct, acquire or purchase any and all canals, ditches, reservoirs, reservoir sites, water, water rights, rights of way or other property necessary for the use of the district, using to pay for the same the bonds of the district at par.) If the board proposes to make an expenditure of from \$10,000 to \$25,000 their action must be ratified by not less than one third of the legal electors of the district, such ratification to be in writing; and if they propose to make an expenditure of more than \$25,000 they must submit the question to the voters of the district at an election.

(All water distributed must be apportioned to each land owner in the ratio of the lands assessed to him in the district.)

The directors are required to hold meetings of the board regularly each quarter, and all meetings must be public. All property acquired under the law becomes at once the property of the district, in its corporate name, to be held in trust for, and it is dedicated by the statute to the uses and purposes for which the district was organized, and is exempt from all taxation. Get the distinction between the property of the individual members of the district and the property of the district as such. The property of the individual, as his farm and stock, is taxable, but the property of the district is not.

(As in all enterprises of similar nature, the business of the district calls for the expenditure of money. The statute provides that for the purpose of constructing or purchasing or acquiring necessary reservoir sites, reservoirs, water rights, canals, ditches and works, and acquiring the necessary property and rights therefor, for the purpose of paying the first year's interest on bonds, and otherwise carrying out the provisions of the law, the board of directors are to estimate the amount that will be necessary to be raised.) They call a special election of the district and submit the question of whether or not the district shall issue bonds for the amount estimated to be required, and if a majority vote in favor of the bonds, the Board proceeds to issue them, making them in series so that not less than five per cent. of the bonds issued shall fall due in 11 years; six per cent. at the end of twelve years; seven per cent. in thirteen years; seven per cent. at the end of fourteen years; eight per cent. in fifteen years, and so on, the whole to be paid in twenty years, interest on the bonds not to be greater than six per cent. per annum. When the money raised by the sale of this issue of bonds is exhausted, the district may proceed in the same manner to issue other bonds. The board sells the bonds from time to time to secure money for carrying on the business of the district. In this way the people get the money needed, but, as so frequently happens, there is to come a day of settlement when the people must pay back this money with interest. To secure the money with which to pay the debt incurred by the sale of bonds, it is provided that there shall be an annual tax levied upon all of the real property in the district, and the real property of the district remains liable for the debt until it is paid.

The board of directors of the district, on or before the first day of September in each year are to make an estimate of how much money will be required to meet the maintenance, operating and current expenses for the com-

ing year; they certify this amount to the county commissioners. The county commissioners cause the amount to be spread upon the assessment roll of the county assessor to be collected in the same manner as all other taxes of the state or county are collected. The assessment is not made to cover improvements or personal property within the district. The tax becomes a lien upon the real estate the same as any tax. The county commissioners add to the amount estimated by the directors of the district to be needed for current expenses, the amount necessary to meet the payments coming due on bonds and interest for the ensuing year. The county treasurer collects this tax at the same time and in the same manner as other taxes are collected, and the law makes him the ex-officio treasurer of the irrigation district. Construction work in the district may be done by contract.

If a sufficient supply of water is not secured to fully irrigate all of the lands of the district, the law makes it the duty of the board of directors to distribute all available water upon certain or alternate days to different localities, as they may in their judgment think best for all concerned.

There are special provisions in the statute for admitting lands into the district not at first included, and for allowing lands at first embraced within the boundaries of the district to withdraw. If, however, land is withdrawn from the district after a bond issue or other indebtedness has been incurred, such land must continue to pay its share of such indebtedness. It is of course not affected by indebtedness incurred after its withdrawal.

In the other states which have adopted the irrigation district system, there are no features which differ otherwise than in some of the working details from the law as given above in Colorado, excepting the State of Wyoming which makes a radical difference in that it combines the law of state control with the irrigation district system.

(Having discussed the nature of an irrigation District

and given an outline of the work it is supposed to perform, we may give as a definition that an irrigation district is a public corporation organized under the authority of a statute of the State, for the purpose of appropriating, regulating, controlling and distributing water for irrigation, by the owners of the lands to be irrigated.)

(Notice that it is a public corporation.) Corporations are divided in law into private and public. A private corporation is conducted for the private interests of its stockholders. (All corporations intended as agencies in the administration of civil government are public.) Thus an incorporated school district, or county, as well as a city, is a public corporation. The city is called also a municipal corporation. Every municipal corporation is a public body, created for civil or political purposes; but all public corporations are not municipal bodies. The functions of an irrigation district are public; it serves the interest of a public; there is nothing of a private nature in any of its operations.

(An irrigation district may be dissolved on petition of a majority of the voters of the district filing a petition showing that all of the debts of the district have been paid and that no interests will suffer by such dissolution.)

There is a subject which while it does not have to do with irrigation, the application of water to lands, will be more in place in this course of lectures than in any other course of study given in the college; hence I shall take up the matter of drainage, the removal of water from lands.

Had it been suggested in the days of the early settlement of the State that the time would come when the legislature would be called upon to enact laws for the drainage of large bodies of land within the State by joint public action, the general condition of aridity would have been taken as a guaranty that no such action could ever be required. The application of water to lands lying well away from and above the river bottom has led, however, to the accumulation of water in low places below

the irrigated lands and the converting of large tracts of once valuable farming land into swamp and so wide extended is this damage in some portions of the State that the injury can be successfully repaired only by the combined effort of a whole community.

Recognizing this fact, the legislature of Colorado in 1903 enacted a law known as the drainage law. This law is as follows:

"Whenever any person, company or corporation desires the construction, enlargement or extension of a ditch, drain or water course, for the purpose of draining and reclaiming seeped or marshy land, they shall file with the board of county commissioners of the county or counties in which such improvement or improvements are to be located, a petition signed by one or more of the land owners who own or represent the major portion of the land which would be affected by the proposed improvement."

It is required that the petition show the necessity of and the benefits to be derived from the proposed works, and name the counties in which the land to be drained lies, and the names and addresses of the owners of the land, and there must be attached to the petition a map or plat showing approximately the location, direction, size and length of the proposed drain, or ditch.

The commissioners appoint a board of viewers, three disinterested residents of the county, who choose an engineer to accompany them. This board of viewers go over the proposed line of the drain and make such surveys as are necessary to arrive at a fair conclusion as to the desirability, feasibility and cost of the drain, and make their report to the county commissioners. If the report is to the effect that the proposed work is not feasible the petition is denied; but if found feasible and of use and benefit and to be desired by owners of a major part of the lands affected, the viewers include in their report a recommendation of the method to be pursued in prosecuting the work, and submit plans and specifications for the letting

of contracts and fix and recommend the proportionate assessment for each tract of land affected. Any person not satisfied with the report of the viewers may take the matter before the district court for adjustment. If the persons to be affected by the work to be done, wish to do the work themselves the viewers decide upon the proportionate share of the work each should do, and each party gives bond to insure the completion of his part of the work. If the work is not done by the parties interested, the county commissioners advertise for bids and the contract is let to the lowest responsible bidder. When the work is completed and accepted, the county commissioners determine the total cost, damage, and other expense and divide the amount among the several tracts of land affected, and certify to the county assessor a list of the lands affected, the total amount to be assessed against each, with all of the credits for work or damage due the owner of each tract, and the assessor enters the net assessment against each tract lying in his county, and the county treasurer collects the amount along with other taxes against the land. When the contractor completes a work of this nature, the county commissioners draw a voucher against county funds to pay for the work and the county is reimbursed from the tax collected as stated above. The right of eminent domain is extended to work of this nature.

In 1911, the legislature passed an Act providing for the organization of drainage districts. In the first section of this Act the legislature says: "It is hereby declared by this general assembly that the reclamation by drainage of lands not at present cultivable or useful or fully so will be conducive to the public health, convenience, utility or welfare, and the owners of agricultural lands susceptible of drainage by the same general system of works may propose the organization of a drainage district, by presenting to the board of county commissioners of the county, where the larger portion of said lands lie, a petition giving the name of the proposed district, and

praying that the board of county commissioners cause the question of the organization of said district to be submitted to a vote of the owners of said lands lying within the boundaries thereof, or a drainage system may be established without election."

If the prayer of the petitioners is that a drainage system may be established without holding an election and it appears that a large portion of the land that will be benefited by the proposed drainage system, is unoccupied land or so many of the owners of the land to be benefited are not resident upon the land, that an election would be impracticable, the board of county commissioners may cause a system of drainage to be constructed and may exercise all of the powers which, under the law, a board of directors of a drainage district might exercise. During such control by the commissioners, the residents of the section of country affected by the work may at any time petition to have an election held and a drainage district organized, thus taking it out of the hands of the county commissioners.

The petition above spoken of must be signed by a majority of the owners of the lands to be affected, whether they are residents or not, who shall be the owners of a majority part of the lands affected. It must contain a general description of the proposed boundaries of the district, and be accompanied by a map, showing the general plan of the work, and the names of the owners of land to be affected, and a general description of the method to be adopted for the drainage of the lands. The petitioners are to name three of their number to present the petition. We will continue this subject in our next lecture.

OUTLINE OF LECTURE 25

Steps to complete organization of Drainage District.

Amendment of 1913; note how it differs from Act of 1911.

Private enterprises in irrigation form a larger aggregate than all others.

Difference between purpose of private and public corporations.

What required when three or more persons join to develop irrigation works.

Time for commencing and completing work.

How raise funds; proviso. Care of ditch.

How companies may unite. Length of corporate life.

Right to take water for storage in reservoirs.

Water may be stored—when.

Reservoir company may construct ditches.

Dam more than 10 feet high, state engineer.

Company liable absolutely for damage.

When subject to supervision of State Engineer.

Complaint how treated.

When County Surveyor may act. His duties in such cases.

Duty of owners when ditch crosses public road.

Rule of last comer.

Limit of right as to quantity of water.

When storage is forbidden. Law as to distinct Irrigation season. Affect of recent decisions upon old notions in this matter.

How first view appears to be supported by statutes in Colorado.

Duty of user to see that he gets no more than he is entitled to.

Right to continue to purchase water.

LECTURE 25

Let us suppose a petition to have been regularly filed with the county commissioners, an election held and the vote showing a desire to organize a drainage district. We will follow the steps to be taken to complete the organization, and the manner of doing the work for which the district is formed.

The board of commissioners have a sitting to hear applications to have lands included in the proposed boundaries of the district removed therefrom, and, also, to hear from those who may wish to have their lands included in the district. At the election there have been elected three directors of the district.

The vote polled at the election is canvassed by the county commissioners and they make an order declaring that said drainage district is duly organized under the name given in the original petition. This order is filed for record with the county clerk of each county into which the district extends. The directors elected enter at once upon the duties of their office, which duties are to have the care and management of the affairs and business of the district. The board may cause surveys to be made for ditches and drainage works and rights of way, and work necessary for the district to be laid out, constructed, purchased and acquired, by condemnation or otherwise, but they cannot let a contract for an amount above \$5,000 until it has been approved and ratified by the owners of a majority of the land in the district, and no contract involving an expenditure of more than \$10,000 shall be incurred until the same has been submitted to a vote of the whole district and received a majority vote in its favor. The board is required to hold meetings at least once each quarter, which meetings must be public. All property acquired for the use of the district

is held in the name of the district, and held in trust for the uses and purposes of the law establishing such districts. The county treasurer of the county where the office of the district is located is ex-officio treasurer of the district, and is liable under his official bond for the safety and disbursement of the funds of the district. He collects all assessments and moneys belonging to the district, and pays them out on the order of the district board. At each regular meeting of the board of directors of a district the treasurer reports the amount of money on hand belonging to the district, the amount received since his last report, and the amount paid out.

The board of directors on or before the first of July each year make an estimate of the amount of money required to meet the current expenses of the coming year, including the cost of construction, maintenance, operating and ordinary expenses, deficiency in the payment of expenses already incurred and bond interest unpaid, and fix the amount per acre necessary to be assessed against the lands of the district to pay the amount of the estimate, and they enter an order that each tract of land within the district be assessed at that rate.

The letting of contracts for drains and other work of the district, the raising of money on the bonds of the district, the collection of moneys pro rata on the lands of the district to pay the bonds and interest thereon, the collection by the assessor of the county, and the establishment of a tax lien upon the lands, all of these features are exactly similar to the same features in the business of an irrigation district already thoroughly explained.

The law forbids any director of a district to be in any manner interested in any contract let for district purposes.

The water that may be gathered is made the property of the drainage district.

Whenever the owners of lands which may require a combined system of drainage shall unanimously and

mutually agree upon a system of drainage and the character of the work necessary to be done to drain their lands, they may reduce their agreement to writing specifying the boundaries of the tract proposed to be included in their work, and upon filing this agreement with the county commissioners they are to be recognized as a voluntary drainage district.

In 1913, the legislature of Colorado passed an Act amending the Act which I have just reviewed. The amendment calls for a more detailed statement of the conditions of the lands to be drained by the proposed district, and provides tests to determine who shall have a right to vote at the election called to determine whether a district shall be formed.

The later Act also requires that the lands in the drainage district be classified according to the amount of benefit they will derive from the proposed work and that the tax to be levied be apportioned among the lands in proportion to such benefit.

Other amendments have to do with questions of practice which I have not believed should be considered in this course of lectures.

I have now passed in review all of the methods of developing, handling and controlling water by public corporations, as far as the time we have to devote to the subject will permit. There remains to be considered the matter of control by private water companies and individuals, and the law as it applies to such organizations.

While the General Government, under the various Congressional Acts has expended large amounts of money in the development of irrigation, and the various States, through the establishment of irrigation districts have aided very largely in the same direction, the fact remains that the greatest amount of development has been from the investment of private capital. The enterprises undertaken by individuals and private corporations are not so large as those undertaken by the Government, but their

very large number forms an aggregate greatly in excess, when measured in acres reclaimed, of all public efforts combined.

(These private corporations, it will be remembered, differ fundamentally from public corporations, in that they are organized for the purpose of serving the ends of the incorporators in their private capacity, either in the development of water for the use of their stockholders, or for the purpose of making a money profit. These companies are variously known as irrigation companies, ditch companies, ditch and canal companies, reservoir companies.) When individual irrigators had carried the work of appropriation of water to the extent possible with the means at their command, a point was reached where further development would require larger investments of money and longer waiting for returns upon the investment than had hitherto been necessary. The pioneer irrigators had demonstrated, under many serious conditions of unfamiliarity with the work in hand, that money wisely invested in irrigation could be as safely counted upon to yield good and regular returns upon the investment as though ventured in lines of business long familiar to capitalists. Experience had shown that even through the loose soil of our arid plains canals could be constructed for many miles and that water could be carried great distances without the loss by seepage and evaporation of more than a relatively small part of the volume taken from the river. Experience had shown, also, that lands lying above and at a distance from the river bottoms were as fertile when watered as those lying close to the river banks.

When it was sought to interest capital, which of necessity had to be looked for in the East where little was known of irrigation, the most difficult obstacle to be overcome was the entire ignorance of the whole proposition among Eastern capitalists. In many places the investment of capital in irrigation enterprises had of neces-

sity to precede settlement, because the settler could not hope to force or coax a living out of the soil before the water had been brought to it. Recognizing the importance in the development of the country of the encouragement of capital to undertake large irrigation enterprises, the different State legislatures early passed statutes to protect such investments of capital to define the rights and duties of private irrigation corporations.

Under the statutes of Colorado when a corporation is formed there must be filed with the Secretary of State a statement giving the corporate name of the company, the objects for which it is incorporated, the amount of its capital stock, the term of the company's existence not to exceed twenty years, the number of shares into which the capital stock is to be divided, the number of directors, and the names of those to act as directors for the first year of the company's existence, and the location of its principal place of business, and the counties in which the business of the corporation is to be carried on.

When any three or more persons associate under the law of the State to form a corporation for the purpose of constructing a ditch, reservoir, pipe line, or any part thereof, for the purpose of conveying water from any natural or artificial stream, to any lands, or storing the same, they are required to add to the information noted above the further information of what stream, channel or source they propose to take water from, the point or place at or near which the water is to be taken out, the location as near as may be, of any reservoir intended to be constructed, the line as near as may be, of any ditch or pipe line intended to be constructed, and the use to which the water is intended to be applied.

A company formed for the purposes above named is required to commence the work on the ditch or other structure named in their statement, within ninety days from the date of filing the statement, and to prosecute their work with diligence, until it is completed, and it is

provided that the time of completion of the work shall not be extended beyond two years from the time of commencement; failure to commence within ninety days, or, to complete the work within such two years works a forfeiture of all right to the water claimed. The statute contains a proviso that in case the company is formed to construct a ditch for domestic, agricultural, irrigation, milling or manufacturing purposes, it shall have three years in which to complete its work. With the restriction that all prior rights must be respected and not interfered with, such a company is given the right to run the water from the stream, through its ditch or pipe line, and store the same in any reservoir of the company when not needed for immediate use.

The law provides that the company may assess its capital stock to secure a fund with which to carry on the business of the company, but all such assessments must be uniform on all of the stock, and must be voted for by the stockholders.

Every such company is required to keep its ditch in good condition so that the water shall not be allowed to escape to the injury of any road, ditch or other property.

Where two or more companies deriving their supplies of water from the same source or sources wish to consolidate their interests, and unite their respective companies under one name and management, they may do so by filing a certificate of that fact in the office of the Secretary of State, and a duplicate of such filing in the office of the county clerk of the county in which the company formed by the consolidation has its principal office. A ditch company cannot carry on its corporate life under its original papers for a greater time than twenty years, but, upon the termination of that period it may renew its corporate life for another twenty years.

The right to take water from the streams of the State for storage in reservoirs is given by the statute

which says in substance that persons desirous to construct and maintain reservoirs, for the purpose of storing water, shall have the right to take from any of the natural streams of the State and store away any unappropriated water not needed for immediate use. They have the right, also, to construct and maintain ditches for carrying such water to and from reservoirs, and to condemn lands for right of way for ditches. We have already seen that if it proposed to build a dam or embankment more than ten feet high they must submit their plans to the State Engineer and get his approval before proceeding with the work.

Owners of reservoirs are made liable for all damages from leakage or overflow of the waters from such reservoirs, as well as for damage done by floods caused by breaking of the embankments of the reservoir. There is no expression in the statute by which the owners of the reservoir may claim to be relieved from damage in such cases because of the occurrence of an unusual flood, or other unforeseen conditions. The party who constructs a reservoir does so at his peril and must practically guarantee others from damage.

A reservoir to hold more than 75,000,000 cubic feet of water or with a dam over ten feet in height, or covering an area of more than twenty acres must be built under the supervision of the state engineer, and it is not to be filled with water until the state engineer gives to the owners of the structure a written statement of the work of construction and the full completion thereof together with his acceptance of the work.

The state engineer is required to determine each year the amount of water which it is safe to impound in the different reservoirs of the state, and it is unlawful to run into any reservoir any more water than the amount decided upon by the state engineer. If more than such an amount is stored it is the duty of the water commissioner to draw the excess off and close the inlet to the reservoir.

If complaint is made by any three or more persons residing or having property so located that a break in the reservoir embankments would endanger such property they may complain to the state engineer that the reservoir is in an unsafe condition or that it is being filled to an extent to render it unsafe, and the state engineer is required to examine the reservoir at once and determine if there is any threatened danger, and if he finds that there is he must cause the filling to be stopped, or, if he deems it necessary, he may order the water in the reservoir to be drawn off.

✓ The law provides that it shall be the duty of the county surveyor of each county, upon the request of the owner to ten or more acres of arid land in his county, to locate and survey an available site for a reservoir on such land, such reservoir to be used on such land for the storage of water to be used thereon or contiguous thereto and such reservoir to be of capacity to hold water enough to irrigate at least ten acres of such land. The owner of the land must begin construction of the reservoir within thirty days after the survey is made and must work continuously on it until it is finished, and the work of construction of the dam and the outlet must be done under the direction and supervision of the county surveyor. When the work is completed the county surveyor is required to file a plat giving size, location and place of use of the reservoir and its contained water. The county commissioners approve the plat, and the owner must use it and keep it in repair. All such reservoirs so constructed in any county are to be inspected each year by the county surveyor, who is to file with the county commissioners a written report showing whether such reservoirs are being used, the condition of the dam and outlet, and if he finds a reservoir to be in an unsafe condition he is to notify the owner, who must proceed at once to put it in a safe condition.

Where a ditch crosses any public highway, or any

public traveled road, the owners are required to put in a good substantial bridge, not less than 14 feet wide; if, however, a ditch is in position and a road is constructed across it the county or the parties for whose use the road is constructed have the duty of putting in the ditch and maintaining it in repair. The general rule in such cases is that the last comer must leave the first comer in as good condition as he found him and maintain that condition.

During the summer season, it is unlawful for any person to run through his irrigation ditch any greater quantity of water than is absolutely necessary for irrigating his land and for domestic and stock purposes, it being the intent and meaning of the law to prevent the wasting and useless discharge and running away of water.

Owners of reservoirs have not the right to store any water in such reservoirs during the time that such water is required in senior ditches for immediate use for direct irrigation or for storage in reservoirs holding senior rights. It has long been the accepted belief in this state that there is a recognized irrigation season as distinguished from an equally well recognized storage season, and the custom has been to consider that from the first of April in each year to the first of November the public waters were not to be stored, excepting in the case where an appropriator wished to store the flood waters to which he was entitled in the early part of the season to use them on late crops grown in the latter part of the season, but that from November first to April first, available water might be stored and that no claim could be made for it during this period for direct application to the land. In a recent case the Court of Colorado has decided that there is no season or time in the year when a person having an appropriation for direct irrigation may not demand his water as against storage claimants dating junior to him on the river. The logical result of this must be that if parties who have no storage rights wish to continue to run water upon their

lands all winter, even though such action may result in the ultimate injury to their land, they may do so and thus prevent the storage of water in reservoirs. The view just given of the division of the year into two distinct seasons, an irrigating and a storage season, would seem to be indirectly sanctioned by the section of the statute which reads, "Every person or company owning or controlling any canal or ditch used for the purpose of irrigation and carrying water for pay, shall, when demanded by the users during the time from April first, until November first, in each year keep a flow of water therein, so far as may be reasonably practicable for the purpose of irrigation, sufficient to meet the requirements of all such persons as are properly entitled to the use of water therefrom, to the extent, if necessary, to which such persons may be entitled to water, and no more." Another section of the law reads, "The owners, or persons in control, of any canal or ditch used for irrigation purposes, shall maintain the same in good order and repair, ready to receive water by April 15th, in each year,"

There is a provision of the law which seems to take a higher view of the innate virtue of men than common experience would seem to justify; it reads as follows, "It shall be the duty of every person who is entitled to take water for irrigation purposes from any ditch, canal, or reservoir, to see that he receives no more water through his headgate, or by any ways or means whatsoever, than he is entitled to, and he shall, at all times, take every precaution to prevent more water than he is entitled to, coming upon his land. If such person finds that he is getting more water than he is entitled to, either through his headgate or by means of leaks, he must take steps to prevent such excess coming upon his land."

Except in those cases where a stockholder in a ditch has sold his stock and thus parted with his right to use water from the ditch, a person who has purchased and used water for his lands from any ditch or reservoir, and

has not ceased to do so with intent to secure water from another source, shall have the right to continue to purchase water as he has been doing by offering the price established for water in such ditch or reservoir. This means that after having allowed a man to buy water for a time a company shall not, while they still have water to sell, arbitrarily cut him off from the supply.

OUTLINE OF LECTURE 26

Need of some provision for preserving a record.

Law of 1879 in Colorado, for adjudicating water rights.

Its purpose. Its provisions. What required of each claimant.

Difficulties met with. Why referee was needed.

Principle upon which adjudication was based.

Numbering of priorities.

How belated cases are to be handled. Decree—authority.

Appeal—right cut off after four years.

State canals and reservoirs. Purpose of law of 1889 concerning them.

Duty of State Engineer. Where title to such works vests.
How they are to be handled.

Mutual or neighborhood ditches; law in Colorado, as to cost of maintenance.

What to do if some fail to perform their part. Lien.

What ditches free from taxation. How about reservoirs?

Right of contractor as to paying in script.

Fundamental thought in the development of the law of irrigation.

Relation or rights, duties, and remedies.

LECTURE 26

Irrigation commenced in Colorado in a small way, as early as the early 60's and by the year 1879 had increased to such an extent that upon some of the streams of the state the supply of water was nearly if not quite all appropriated. Little attention had been given to making a record of the dates of appropriation, or the amounts of water claimed by the different appropriators. Acting upon the principle that diversion and application to a beneficial use established the right, and that he who is first in time is first in right, and that actual user was sufficient notice to all, of the claims of the appropriator, nothing more was deemed necessary to protect a person for all time in his rights to the use of the water as against all later comers. But the time came when the demands upon a stream could not all be satisfied unless some determination could be had of the exact amount to which each party was entitled. Litigation commenced in which later comers on the stream attempted to set a limit to the amount a person might claim by reason of his prior appropriation.

To arrive at a basis of determination, and to secure a record whereby future litigation might be avoided, the legislature, in 1879 passed an Act having for its object the adjudication of all existing rights and the creating of a record which might be referred to at any time to determine how much water a person may claim upon any given appropriation, the date from which his appropriation was to be recognized, and the amount of water which had been appropriated from the stream prior to his coming upon it.

This statute provides that, "for the purpose of hearing, adjusting and settling all questions concerning the

priority of appropriation of water between ditch companies and other owners of ditches drawing water for irrigation purposes from the same stream or its tributaries within the same water district, and all other questions of law and questions of right growing out of or in any way involved or connected therewith, jurisdiction is hereby vested exclusively in the district court of the proper county."

"In order that all parties may be protected in their lawful rights to the use of water for irrigation, every person, association or corporation owning or claiming any interest in any ditch, canal or reservoir, within any water district, shall, on or before the first day of June, 1881, file with the clerk of the district court a statement of claim, under oath, which shall contain the name or names, together with the postoffice address of the claimant, a description of the ditch, canal or reservoir as to location of headgate, general course of ditch, the name of the natural stream from which the same draws its supply of water, the length, width, depth, and grade of the ditch, as near as may be, the time, fixing a day, month and year as the date of the appropriation of water by original construction, also by an enlargement or extension, and the amount of water claimed by or under such construction, enlargement or extension, and the present capacity of the ditch, canal or feeder of reservoir, and also the number of acres of land lying under and being or proposed to be irrigated by water from such ditch, canal or reservoir."

Provision was made for the wide and long continued publication of the provisions of the statute in order that all parties interested might appear in court with their proofs to secure an adjudication of their rights by June 1st. 1881.

Many years had elapsed since the original appropriation in many cases and witnesses had passed away. Changes had been made in the location and size of the

original ditches, and the amount of water claimed was found in many instances to be sufficient if regularly applied to the body of land for which the appropriation was sought to be established to convert the entire body of land into a respectable lake. The Court heard all testimony, or in cases where too much time of the court would have been consumed in the hearing a referee was appointed to take testimony. It was sought to ascertain just how much land each claimant had been accustomed to irrigate from the appropriation, how large his ditch was, and when he began to use water. The principle recognized being that no more water could in any case have been appropriated than was put to a beneficial use, and that while a ditch too large for such use could not determine the size of the appropriation, the appropriation could certainly not be larger than the ditch had been able to carry, the courts arrived at an equitable apportionment of the water among the many claimants.

The statute further provided that, "The district court shall number consecutively and in the order of time proved for the priorities, all water rights adjudicated, designating the amount of each appropriation in cubic feet per second of time; and shall specifically state the particular purpose for which each appropriation is granted, that is, whether for power or manufacturing purposes, domestic use, storage purposes, or any other beneficial use."

Cases which did not get into court at the time appointed for the original hearing and cases arising from appropriations made after the first adjudication may be brought into court for adjudication by petition to the district court.

The court reduces his finding to the form of a decree which decree becomes the authority by which the state engineer and his subordinates are to distribute the waters of any stream.

There is much in the statute which has to do with

the manner in which the court or the referee is to conduct the hearing, and much that has to do with mere details of practice, but as my object is to give only such a discussion as will enable you to know the law, and not to befog you with matters addressed especially to the practicing lawyer, I omit all such parts of the statute.

Any person not satisfied with the finding of the district court in a matter in which he has an interest may appeal the question to the supreme court of the state, and this court has the power, if it thinks, upon hearing of the case, that the district court has not made the proper finding, to make the decree which the district court should have made, or it may direct the district court to amend its decree.

After four years from the rendering of the decree of the district court the right of appeal is cut off and the adjudication cannot be thereafter attacked.

There is a class of canals and reservoirs known as "state canals and reservoirs" which claim a portion of our attention in the discussion of this whole subject.

In 1889, the legislature passed an Act, which begins as follows, "For the purpose of reclaiming, by irrigation, state and other lands, and for the purpose of furnishing work for the convicts confined in the state penitentiary, the board of commissioners of the state penitentiary is hereby authorized to locate, acquire and construct, in the name of and for the use of the State of Colorado, ditches, canals, reservoirs and feeders, for irrigating and domestic purposes, and for that purpose may use convict labor of persons confined as convicts in the state penitentiary at Canon City."

It was made the duty of the state engineer to survey and lay out, under the direction of the board, a ditch or canal on the most feasible route on either side of the Arkansas River, which should be of sufficient capacity to cover at least thirty thousand acres of good arable land between Canon City and Pueblo. Only one ditch or

canal was to be commenced at a time and this was to be finished before another was commenced.

The title of all ditches so constructed was to vest in the state. The board was to lease water rights, and the money derived from the venture was to be turned into the state treasury. The whole scheme was rather utopian, few results have been secured.

With relation to the duty of one of several persons using a ditch as a neighborhood matter there being no incorporation, as happens very often with a small ditch, especially with a lateral from the main ditch, the law of Colorado reads as follows, "All co-owners of unincorporated irrigating ditches shall pay for the necessary cleaning and repairing of such ditches in the proportion that their respective interests bear to the total expenses incurred in said cleaning and repairing. **Provided**, that any such co-owner may perform labor in cleaning and repairing such ditch, equivalent in value to his or their share of such expenses as aforesaid; **Provided**, No co-owner shall be held liable for cleaning or repairing any ditch below the point from which he takes his portion of the water."

"Upon failure of any one or more of several co-owners upon written request of the owners of one-third of the carrying capacity to assist in cleaning and repairing such ditch, the other co-owner or co-owners shall proceed to clean and repair the same, and shall keep an accurate account of the costs and expenses incurred; and shall upon completion of such work deliver to each of such delinquent co-owners, his agent, lessee or legal representative an itemized statement of such cost and expense.

"The co-owners of any such ditch who shall clean and repair the same shall have a lien upon the interest in such ditch owned by such delinquent co-owner for his proportion of such cost and expenses."

The person or persons entitled to such lien may file their claim in the office of the county clerk within thirty

days after the completion of the work, showing when the work was done and the cost and expenses of the work. This lien is assignable to any person, and at any time within six months of the filing of the statement may be sued upon and judgment taken for the full amount of the claim, and a lien established against the interest of the delinquent party in the ditch; the judgment, however, cannot be satisfied out of any other property of the delinquent than his interest in the ditch. If the interest in the ditch is sold to satisfy the judgment, the delinquent has a right of redemption. After a lien has been established and the interest sold, the delinquent has no longer a right to use the ditch unless he redeems from the sale.

A statute of Colorado provides that "All ditches used for the purpose of irrigation, and that only where the water is not sold for the purpose of deriving a revenue therefrom, be and the same are hereby declared free from all taxation, whether for state, county or municipal purposes."

Such ditches as those referred to in this section of the law are not required to pay a tax under the income tax law of the state, or that of the United States; but a reservoir company is taxed for the land occupied by its reservoir, for general purposes and also under the special statutes of the state and nation.

A statute of the state enacted to protect laboring men against being obliged to receive their pay for work done, in certificates payable at a company store, or in any other manner than in cash, is very specific in its protective provisions, and to prevent a construction being put upon the statute not within its intent and purpose there is one section with which we are interested here. This section reads, "That the provisions of this act shall not be construed to prevent ditch, canal and reservoir companies from contracting or issuing orders or warrants payable at future dates in lawful money of the United States, for labor performed or services rendered for it or to con-

tract for and pay for the same in the capital stock of such companies, or water rights or privileges for water connected with the same."

We have now traversed the field marked out for our exploration at the beginning of these lectures. The subject of irrigation law, like the law of any branch of human activity, is not a fixed thing whose dimensions may be measured, and which having been measured and examined in detail may be laid aside as a subject which will require no further study. It is a growing mass of rules deduced from the experience of mankind in a particular field of activity. Many of its underlying principles have been fairly well worked out and correlated with other branches of the law; many still remain to be studied. The fundamental thought in all of the development of the subject is that the subject everywhere concerns the interests of many people, and to so balance the equities as to secure to each the full measure of enjoyment of his rights while not infringing upon the equal rights of others has been a question with which the soundest legal minds of two generations of our people have been engaged.

There are many topics directly connected with our subject which, because of our lack of time as well as because of the want of proper preparation to comprehend them, have been perforce omitted. The whole subject of corporations in their relation to the acquiring of water rights and their administration of irrigation enterprises has been left out with only a passing notice. This branch of the subject might well occupy the attention of the class for as much time as I have given to the whole subject.

Wherever a law points out a duty, or establishes a right it provides a remedy for him who is deprived of that right, and a punishment for him who neglects or refuses to perform that duty. All along in connection with every feature of the subject which I have discussed there is to be found a statement of the penal side of the law. Recognizing that penalties are not provided for him who

seeks to obey, but rather for the one who is willing to violate the injunction of the law, and hoping that you will rank yourselves with the first of these classes, I have spent no time in calling your attention to the "thou shalt," and the "thou shalt not," of the law.

The chief object of the course of study has been to give you such a knowledge of the substantive law of irrigation as to enable you as citizens of the country to know what you have a right to expect from your neighbor, and from the administrative officers of the State when you seek to acquire rights to the use of water for irrigation, as well as to inform you as to what your neighbors and fellow irrigators have a right to expect of you. There is no right inhering in the status of citizen which does not have closely correlated with it a corresponding duty resting upon him who seeks to exercise the right. The fundamental principle of society is expressed in the injunction to "live and let live."

To get to know the facts of the law which are to be your guides as citizens of the world is important, in whatever walk of life you may be placed; but to cultivate a ready desire to obey the law, and to recognize the equal right of all to the protection of the law is at once the most difficult as well as the most important duty of a citizen.

It frequently happens that a person not possessed of complete engineering knowledge of such subjects wishes to compute the amount of water passing over a weir. With a view to aiding such persons, I append the table given on the following page.

How to Use the Weir Table

If you want to know the depth of water in inches which should flow over a weir in order to give a certain volume of water in cubic feet per second, divide the number of cubic feet required, by the number of inches that the weir is wide.

Example—Suppose you want to deliver two and a quarter cubic feet per second (2.25) over a weir 24 inches wide; divide the 2.25 by 24, thus:

24)2.25(.09375

2.16

90

72

180

168

120

120

Search in the table for the figures .09375, or the figures that come the nearest to these, which are .0935. On either the right or left hand side of the table, in a line with these figures, under the column headed inches, will be found the figure 5, and at the top of the column in which the figures .0935 are found will be found 13-16, which means that the depth required over the 24-inch weir is 5 13-16 inches to give the 2.25 cubic feet per second.

We allow one cubic foot and forty-four one-hundredths (1.44) per second for irrigating eighty acres, or nine one-hundredths (.09) for each five acres, or seventy-two one-hundredths (.72) for forty acres.

Weir Table

From $2 = c h^{3/2}$, a modification of Francis' formulae
 $2 = c$ (l. oinh) $h^{3/2}$ $c = 3.33$, l = length of weir in feet,
 h = depth of water in feet.

In.	0	1-16	1-8	3-16	1-4	5-16	3-8	7-16
0		.000104	.000294	.000541	.000834	.001165	.001532	.001931
1	.006672	.007308	.007961	.008634	.009325	.010035	.01076	.0115
2	.01887	.019765	.02067	.02159	.02252	.023465	.02442	.025395
3	.03467	.03576	.03686	.03797	.039095	.04023	.04137	.04253
4	.05338	.054635	.0559	.05718	.05847	.05975	.06106	.06237
5	.0746	.076	.07742	.07884	.08027	.0817	.08315	.0846
6	.09806	.0996	.10115	.1027	.10426	.10582	.10703	.1090
7	.12357	.12523	.1269	.1286	.13025	.13194	.13364	.13534
8	.15098	.15275	.15453	.15632	.15811	.15991	.16172	.16353
9	.18016	.18204	.18392	.18581	.18771	.18962	.19153	.19345
10	.211	.213	.21497	.21696	.21897	.22097	.22298	.225
11	.24343	.24551	.2476	.24968	.2518	.2539	.256	.2581
12	.2774	.27954	.28171	.2839	.28608	.2883	.29047	.29268
13	.31275	.31501	.31728	.31954	.32182	.3241	.3264	.32867
14	.34953	.35187	.35422	.35657	.35893	.3613	.36365	.36604
15	.38764	.39006	.3925	.39493	.39737	.39981	.40227	.40472

In.	1-2	9-16	5-8	11-16	3-4	13-16	7-8	15-16
0	.002359	.002815	.003297	.003803	.004334	.00487	.005461	.006057
1	.01227	.01303	.01382	.01463	.01545	.01628	.01713	.017995
2	.02638	.02737	.02838	.0294	.03043	.03147	.03252	.03359
3	.04369	.04487	.04605	.04725	.048455	.04967	.05089	.05213
4	.063695	.06503	.06637	.06772	.06908	.070445	.07182	.07321
5	.08607	.08754	.08902	.090505	.092	.0935	.09502	.09654
6	.11057	.11217	.11378	.1154	.1170	.11865	.1203	.12192
7	.13705	.13877	.1405	.14222	.14396	.1457	.14746	.14921
8	.16535	.16718	.16901	.17086	.1727	.17456	.17703	.17828
9	.19538	.1973	.19925	.2012	.20314	.2051	.20706	.20903
10	.227	.22905	.23109	.23313	.23518	.23723	.2393	.24136
11	.26022	.26234	.26447	.2666	.26875	.2709	.27305	.2752
12	.2942	.2971	.29932	.30155	.30378	.30672	.3079	.3105
13	.33097	.33327	.33558	.33789	.34021	.34253	.34486	.3472
14	.36842	.3708	.3732	.3756	.3780	.3804	.3828	.38522
15	.40718	.40965	.41211	.41454	.41707	.41956	.42205	.42454

Example—A weir is 24 inches wide, and the depth of water flowing over same 4.7-16ths inches. How many cubic feet are passing over same? Find 4 inches in first vertical column, and follow along horizontal column to 7-16ths, in the square will be found .06237. Multiply this by 24 and the result is found to be 1.49688 cubic feet per second.

This Table gives the number of cubic feet of water per second passing over a weir for each inch in width from 1-16th of an inch to 15 inches in depth. The figures 1, 2, 3, etc., in the first and last vertical columns are the inches in depth of water over weir, while first or top horizontal column represents fractional parts of an inch from 1-16th of an inch to 15-16ths.

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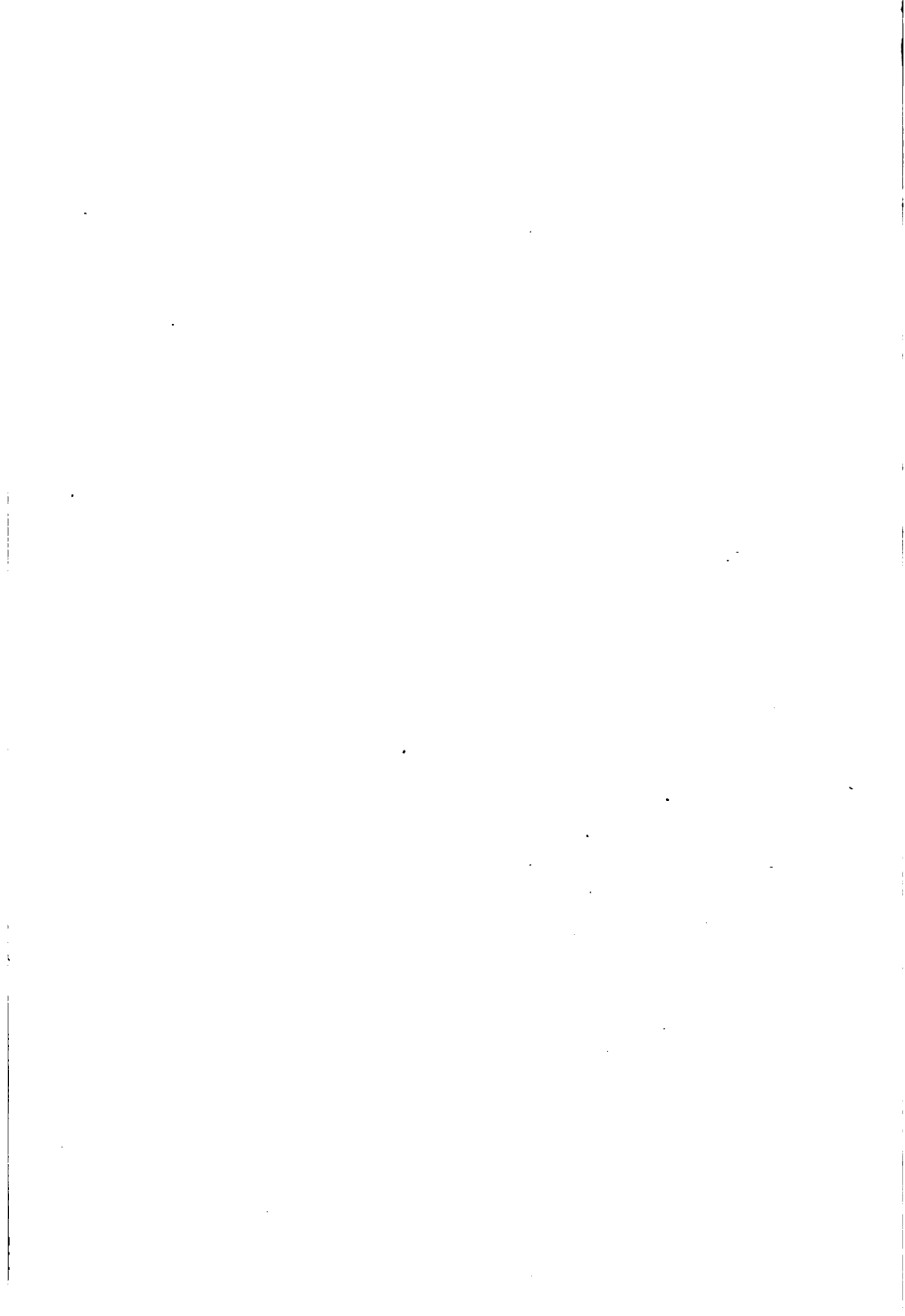
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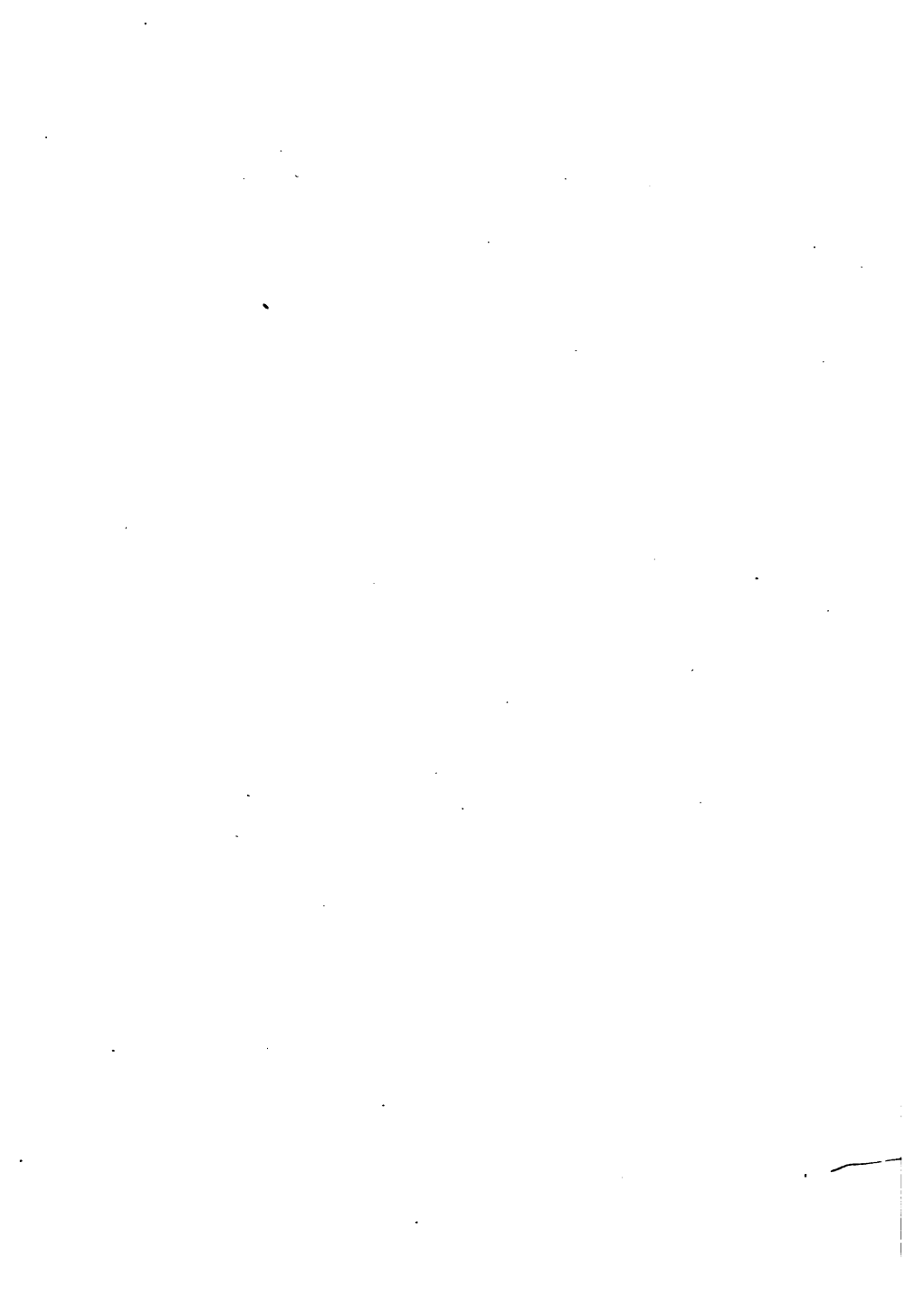
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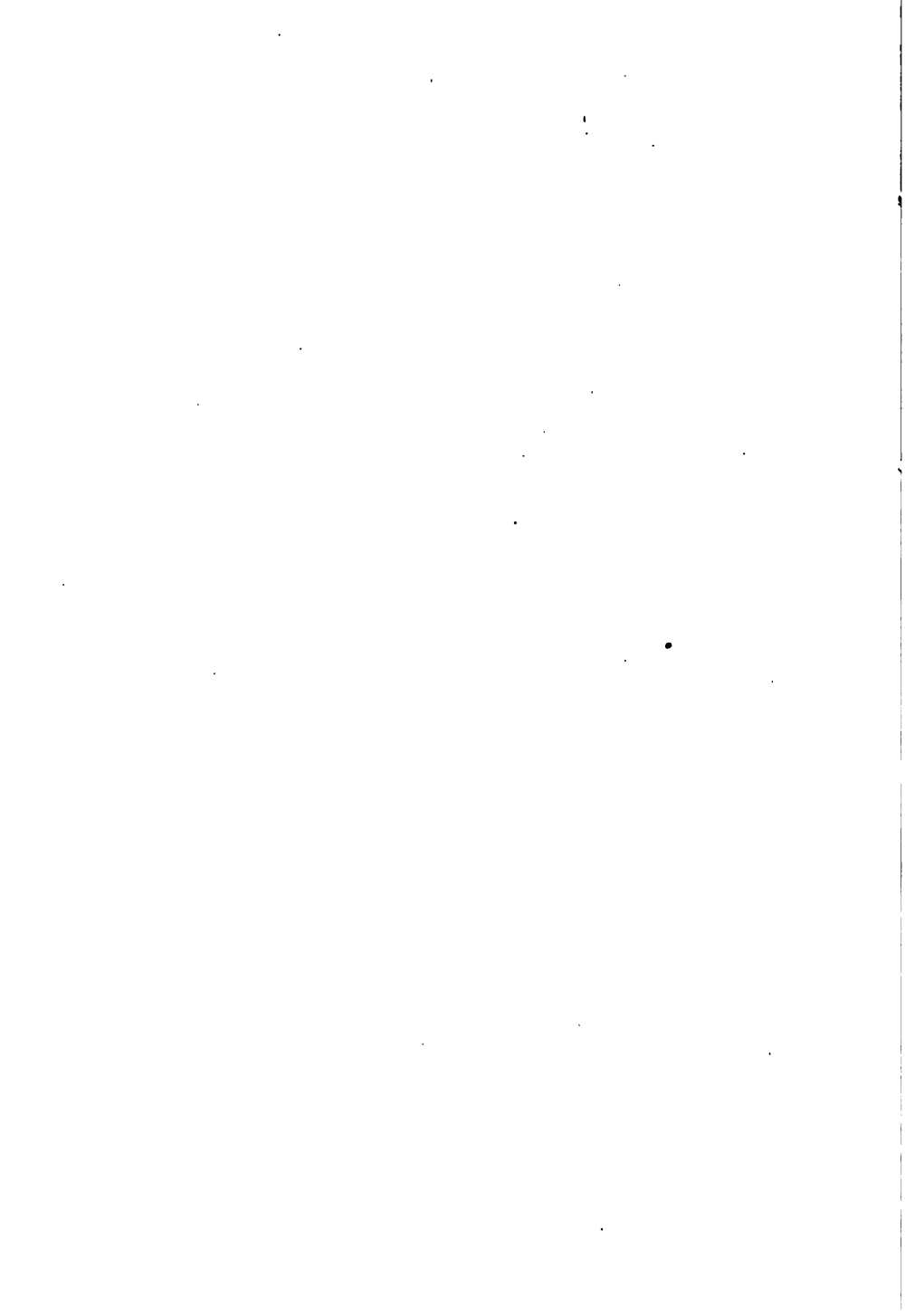
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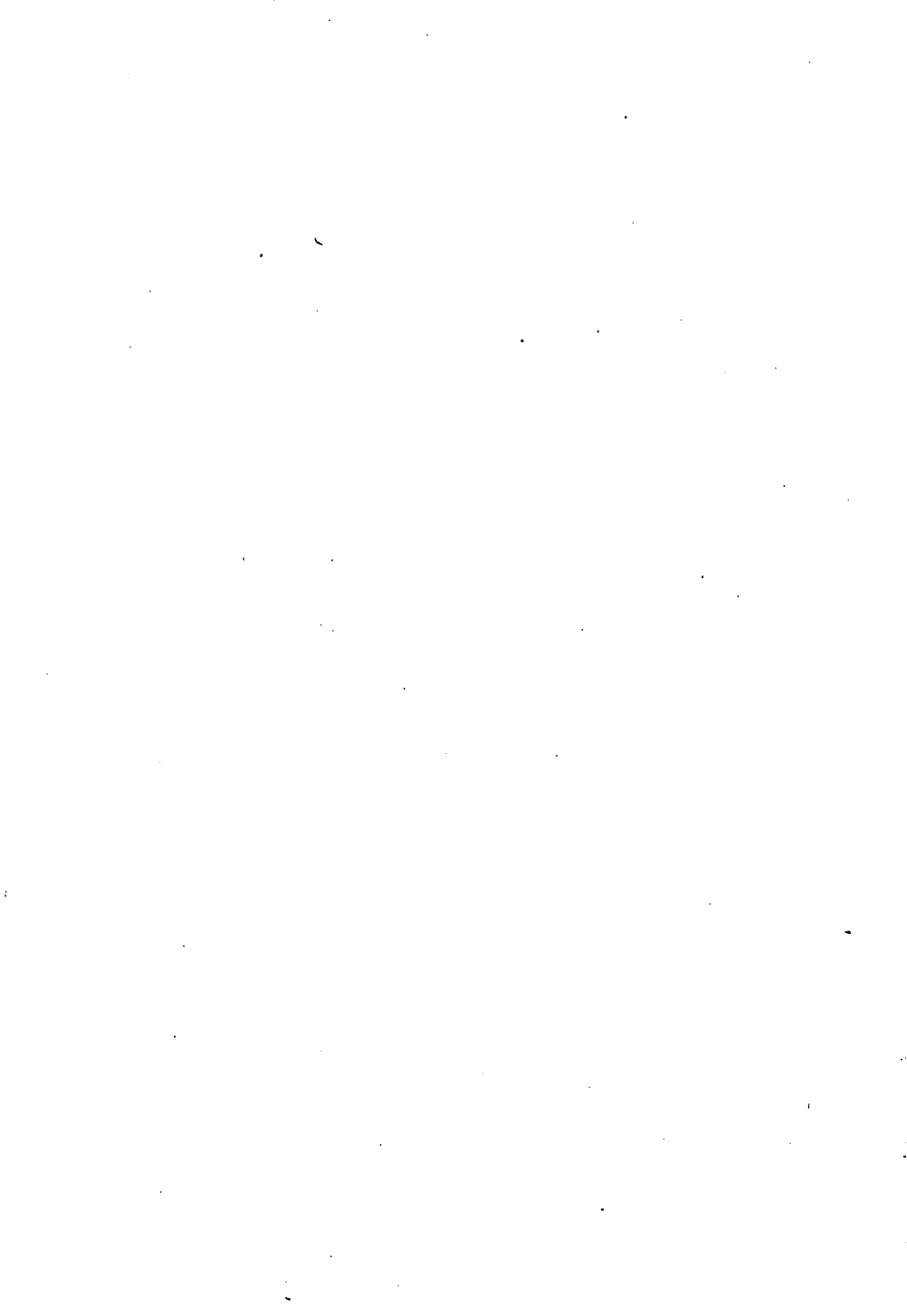


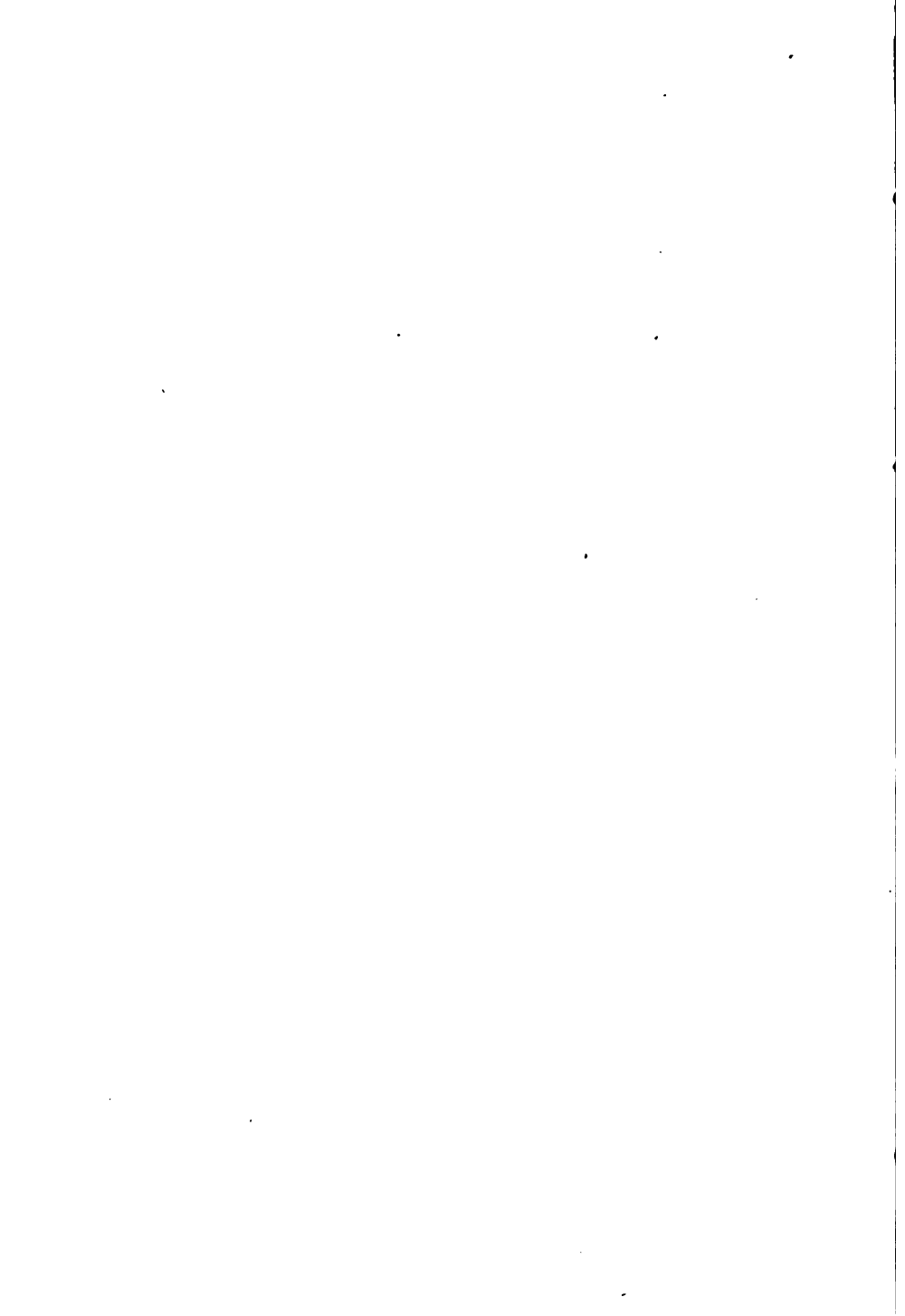


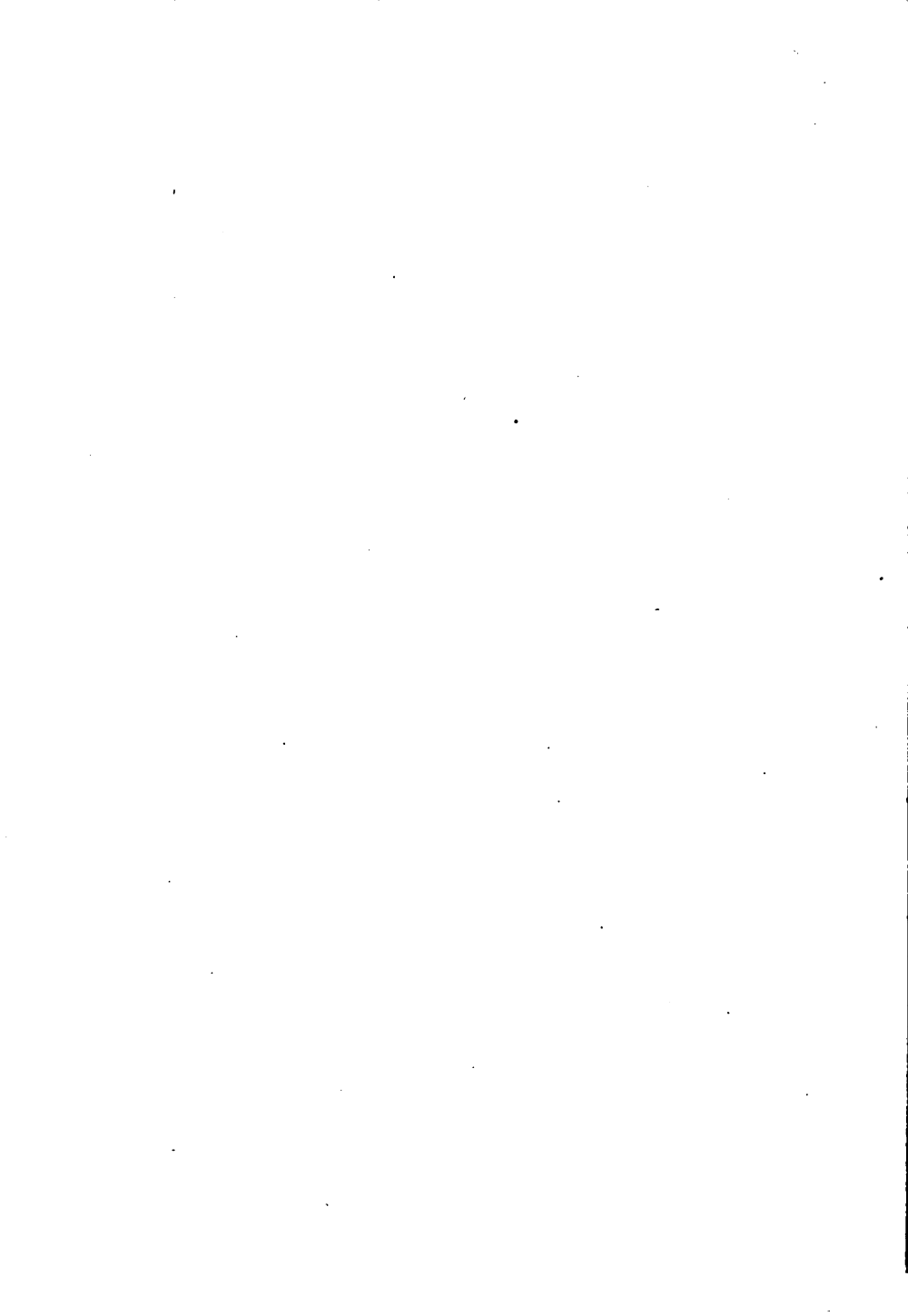


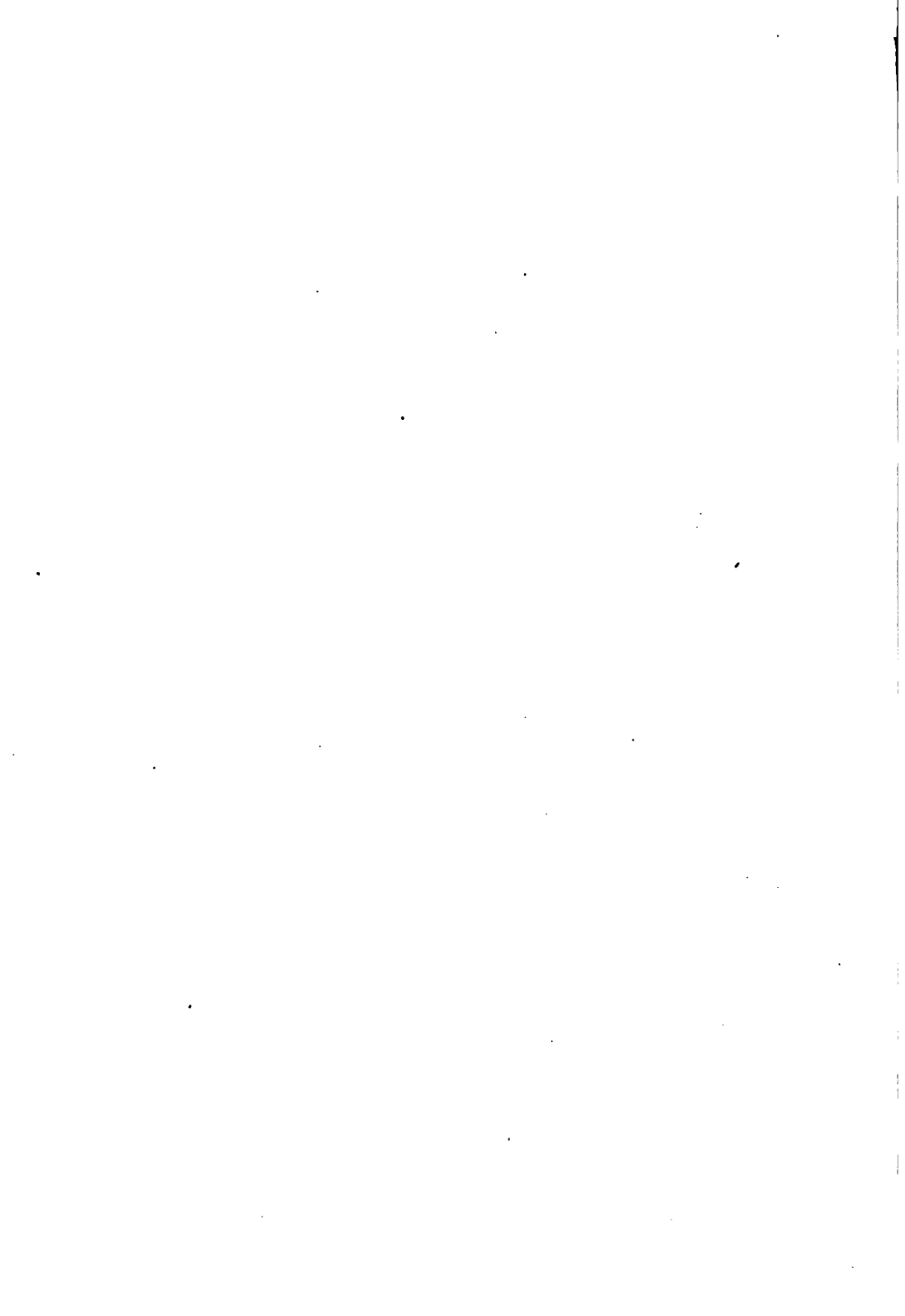


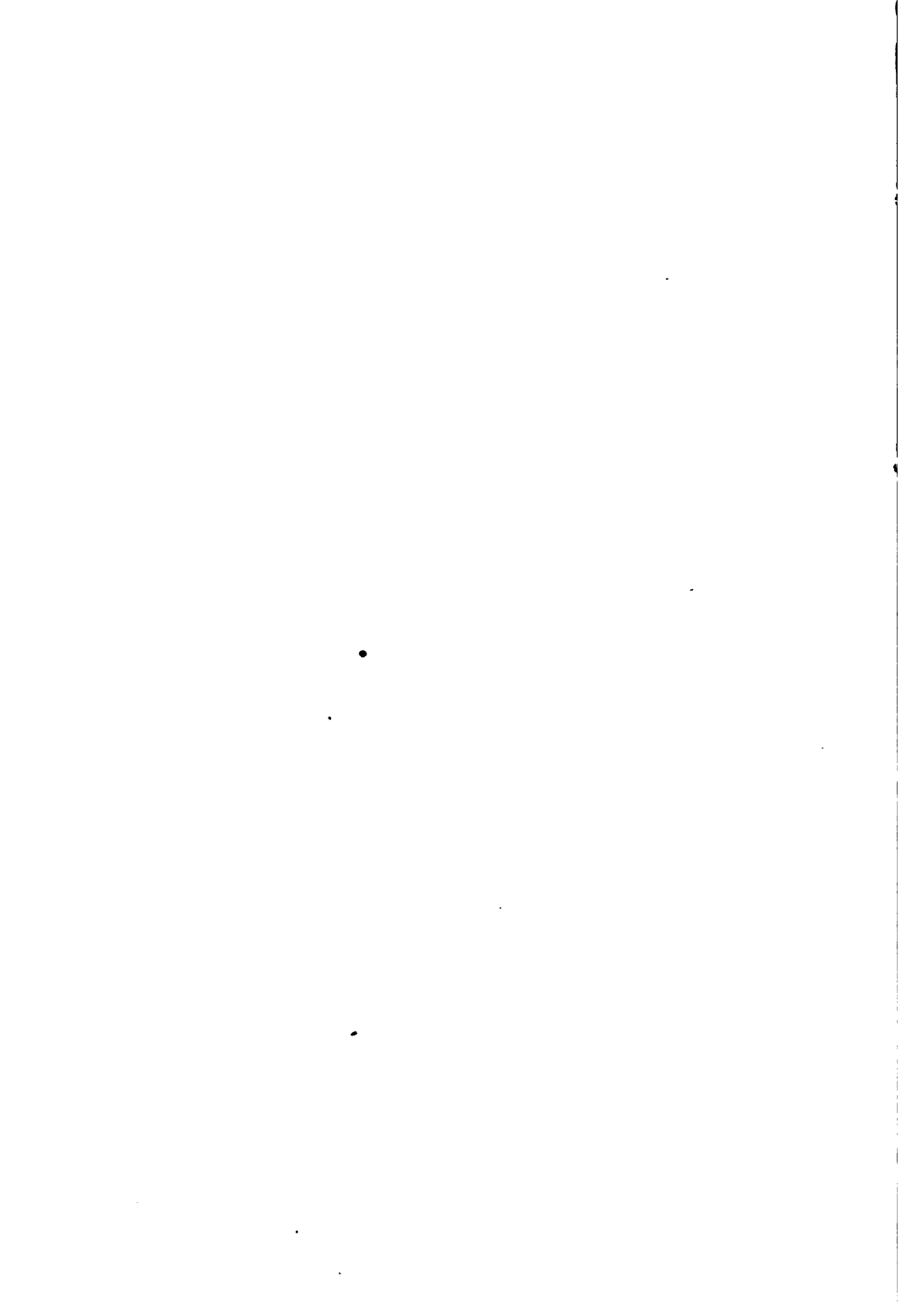


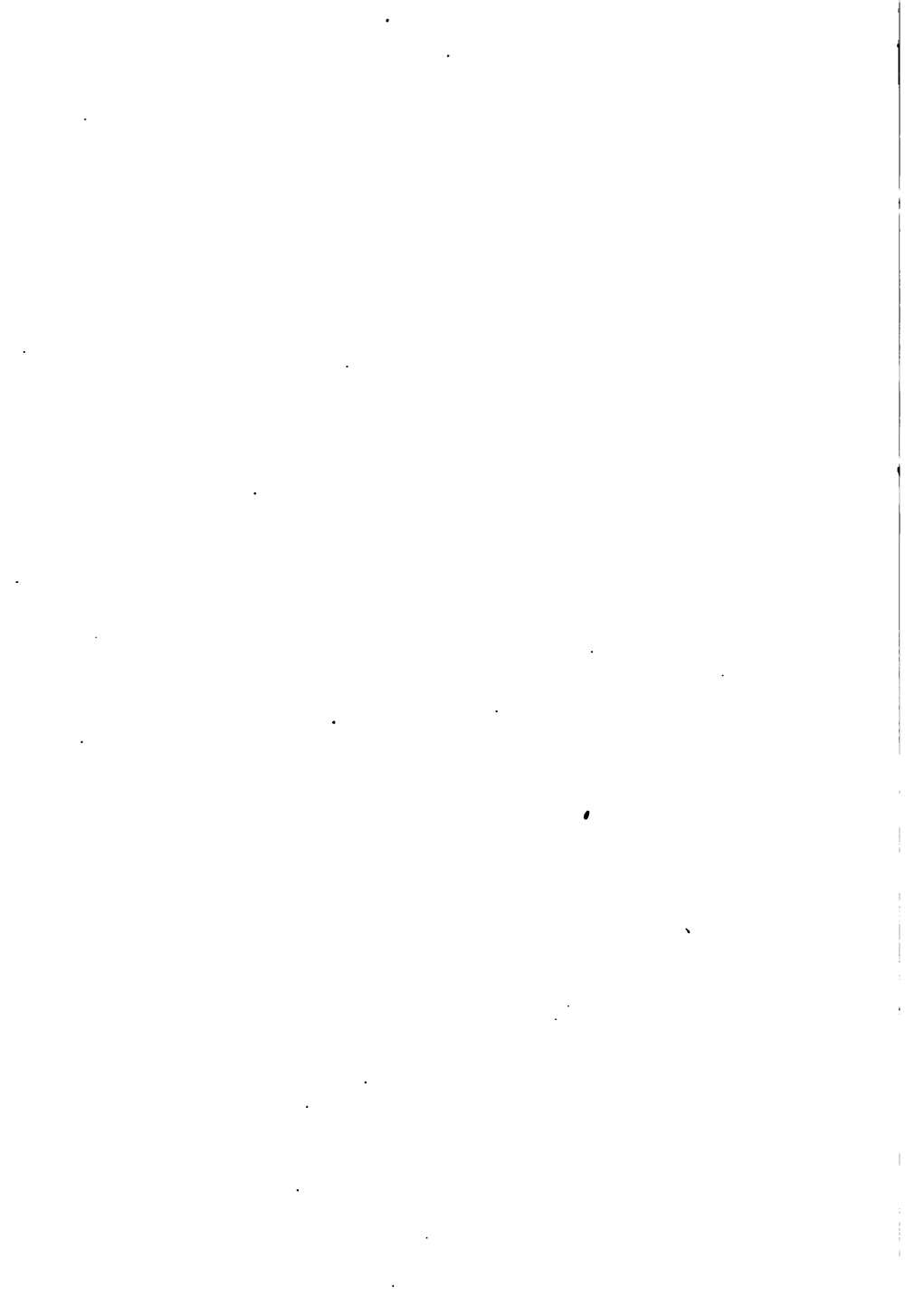


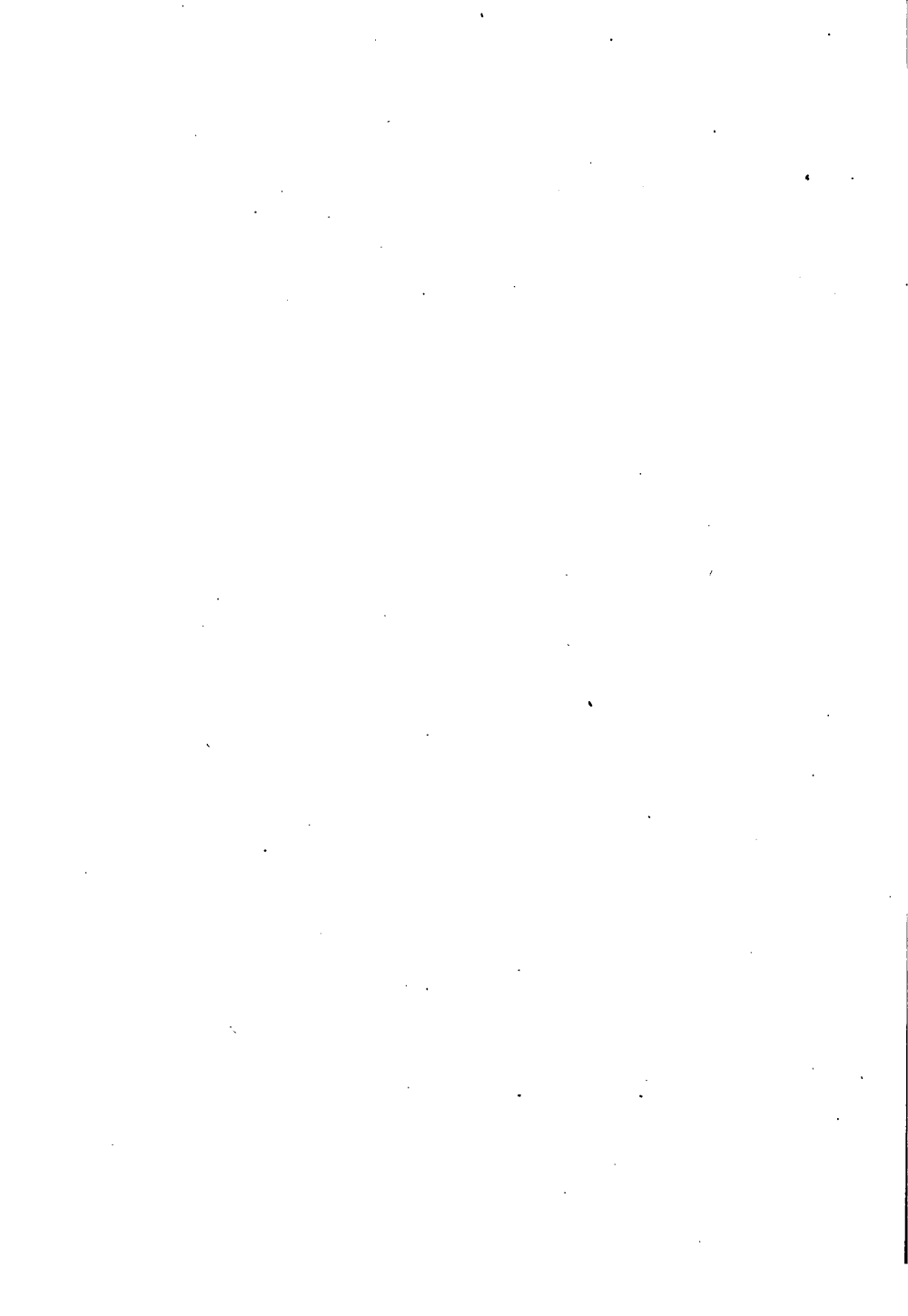


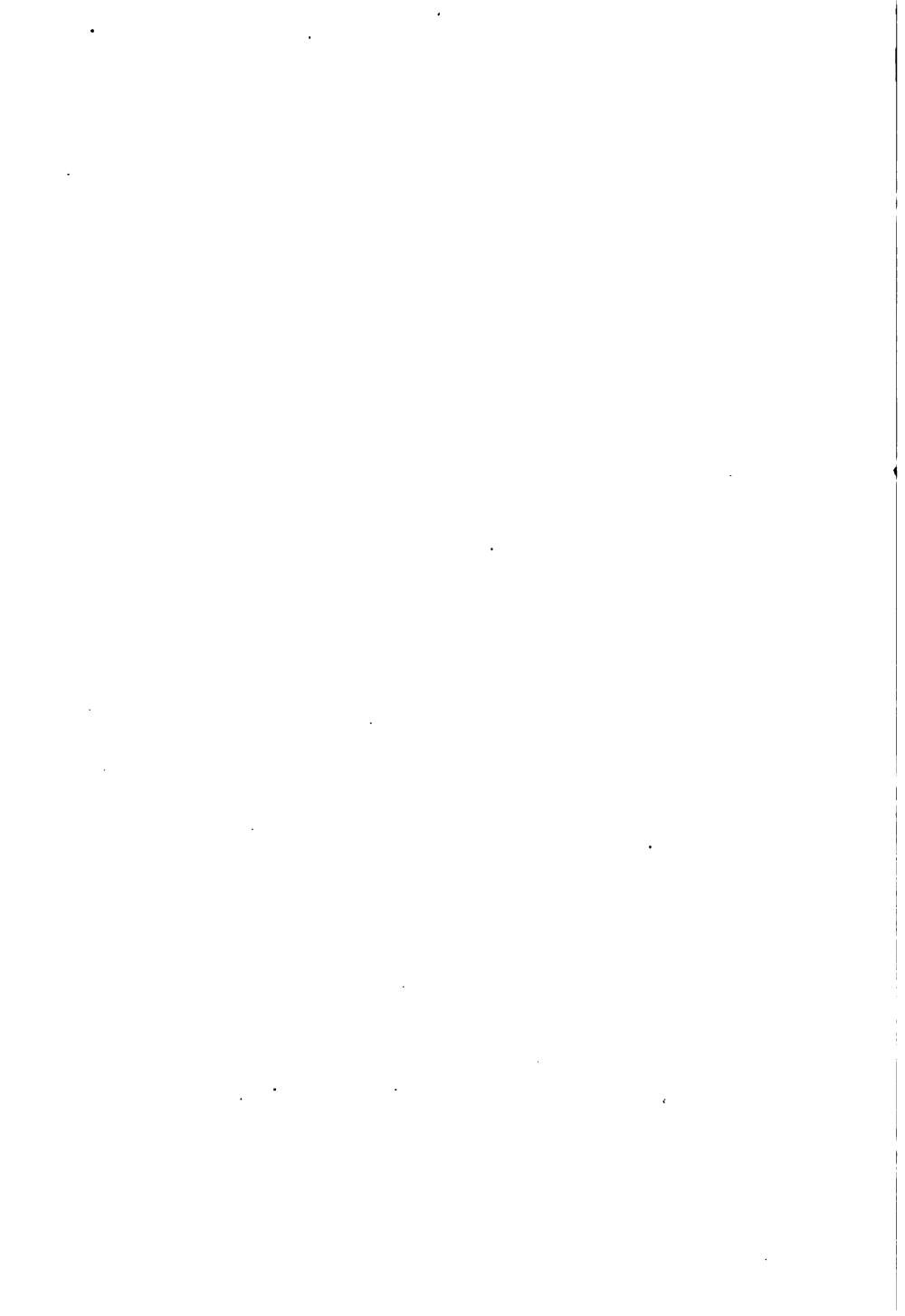


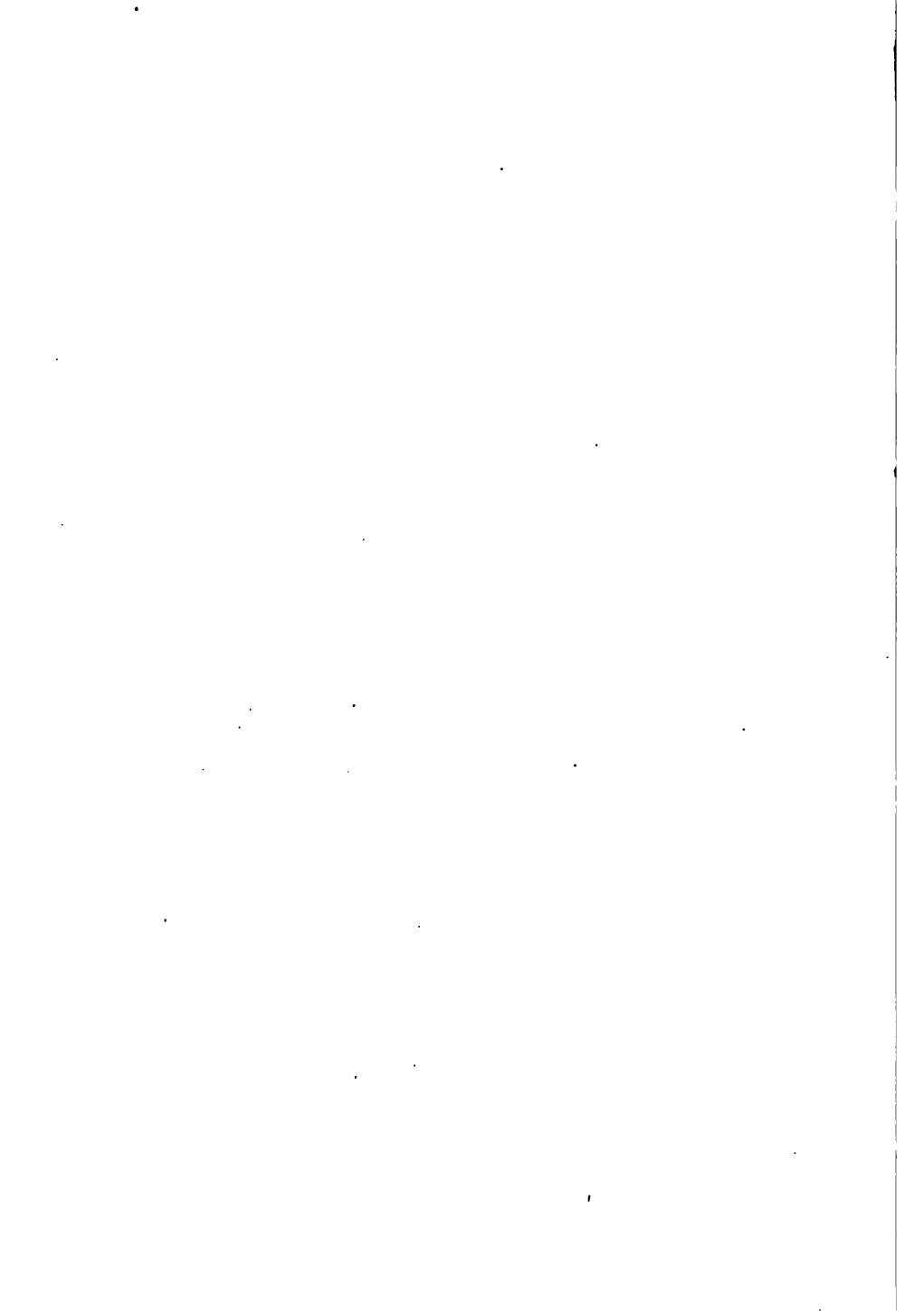


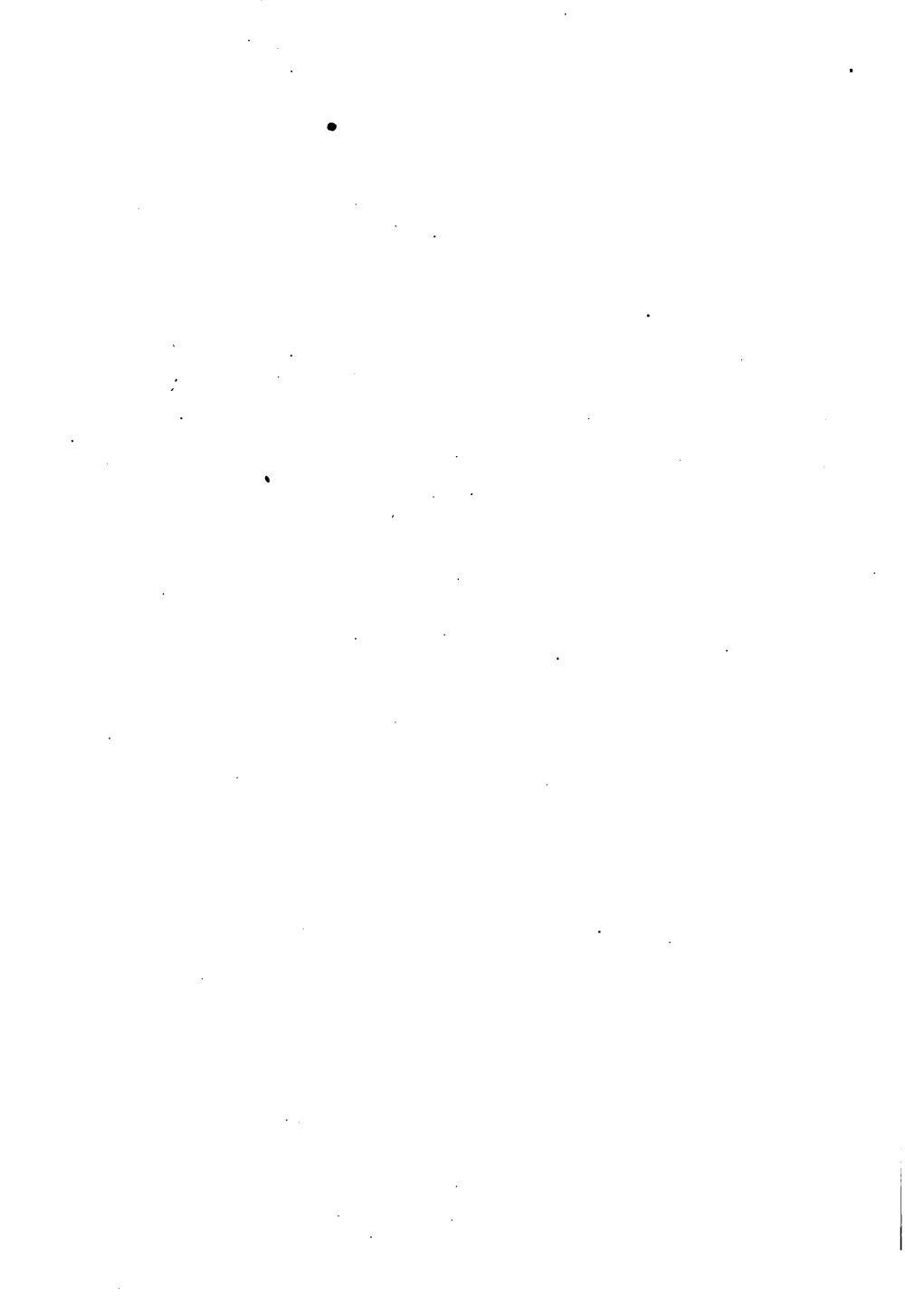


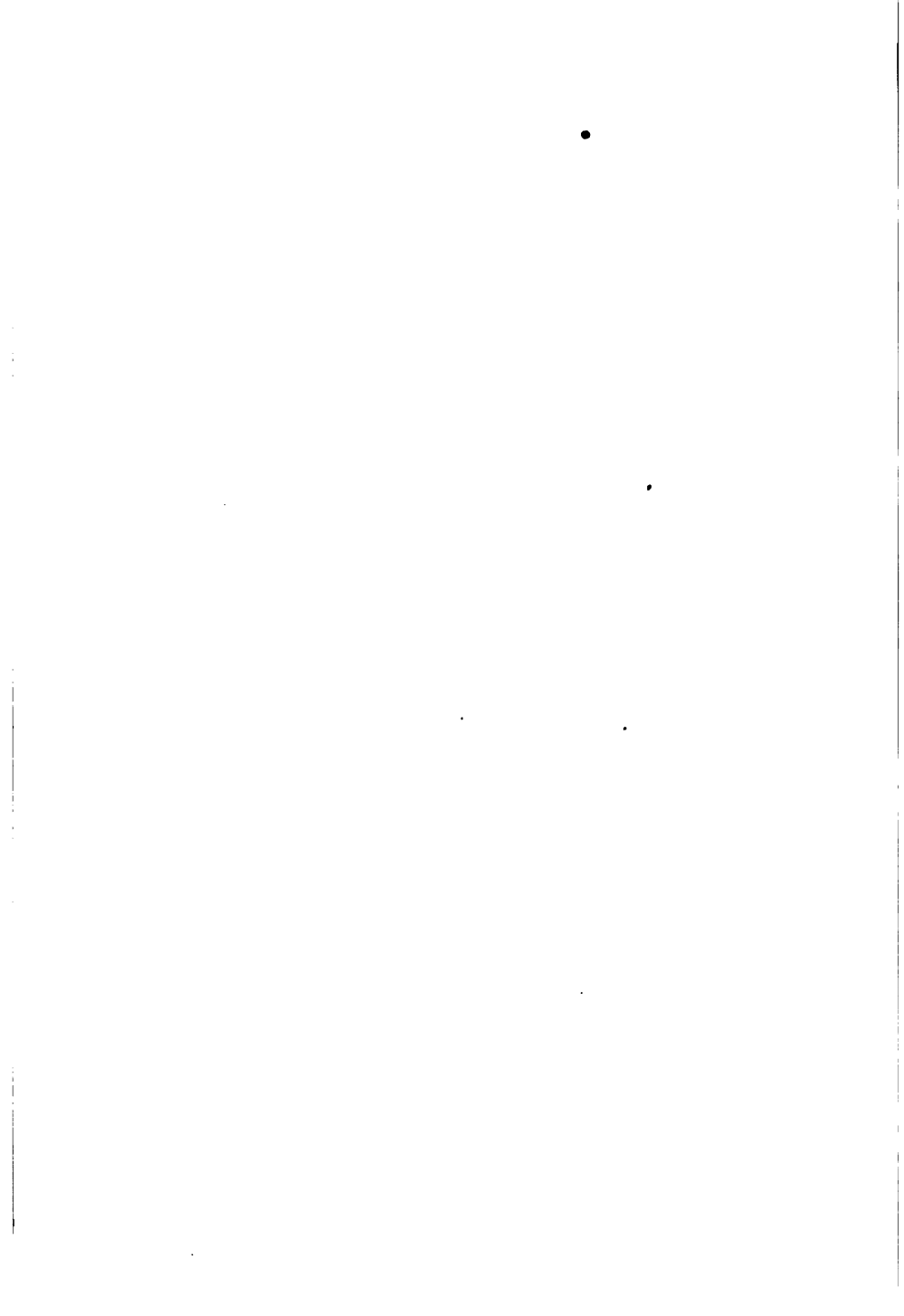




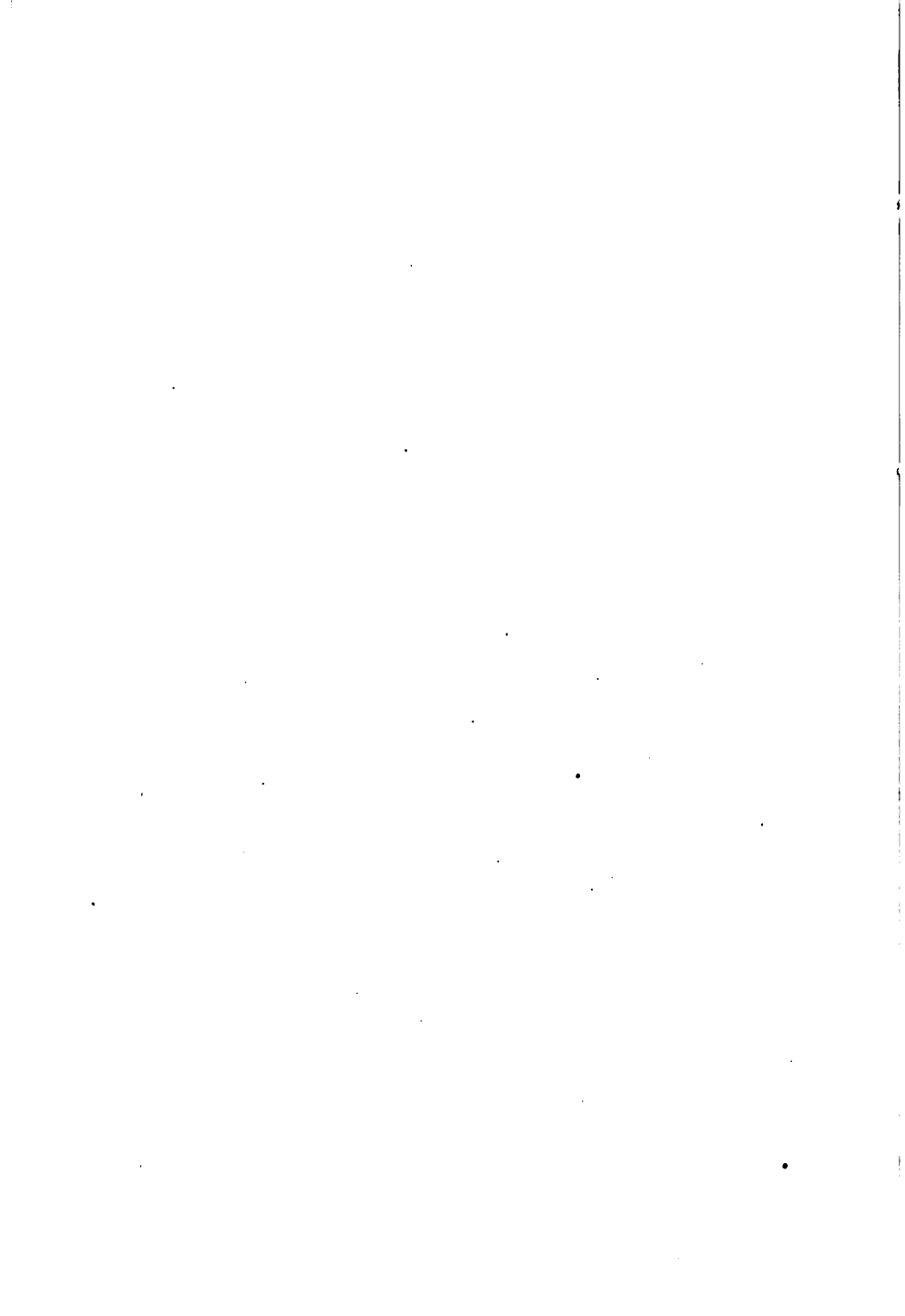


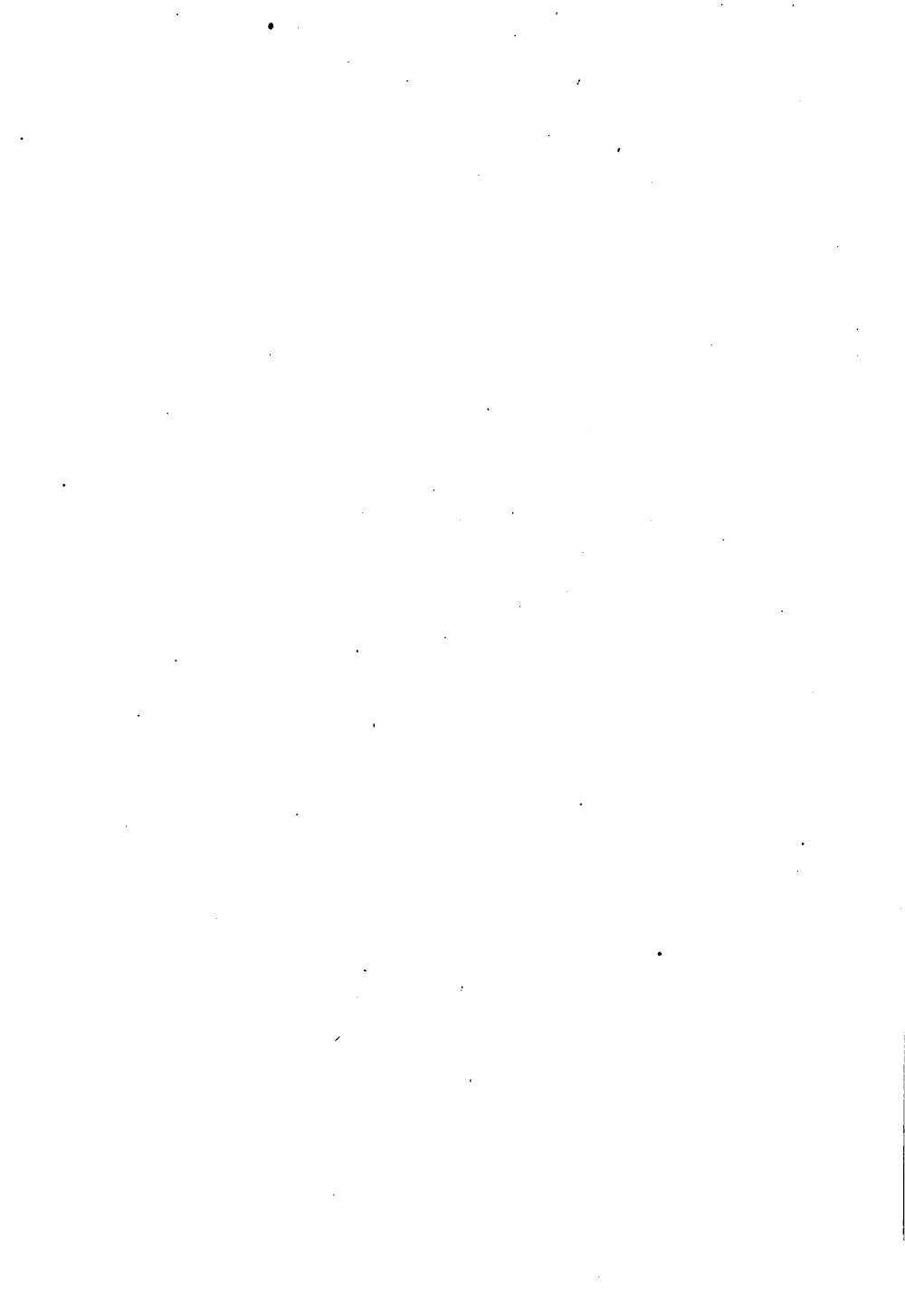


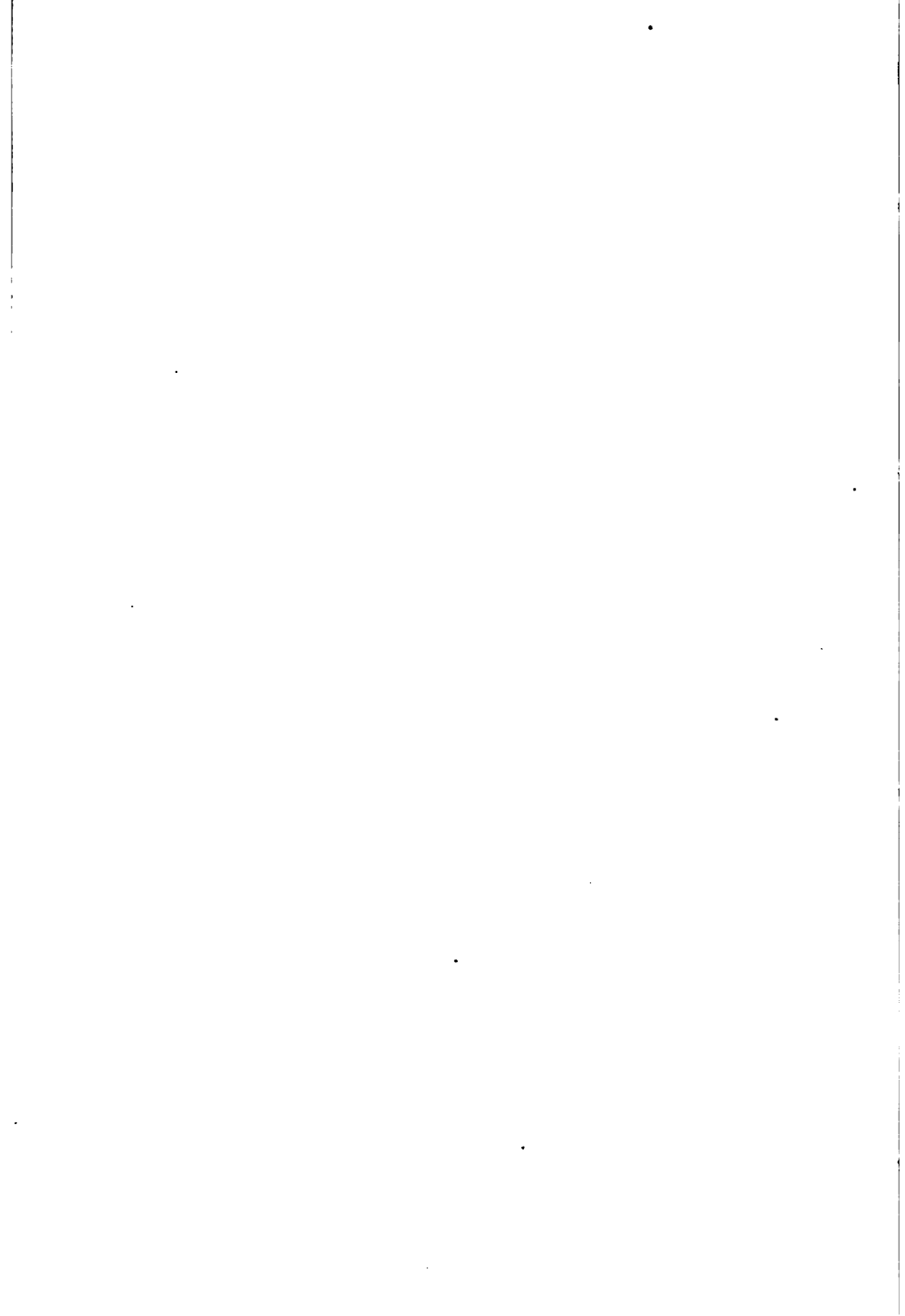




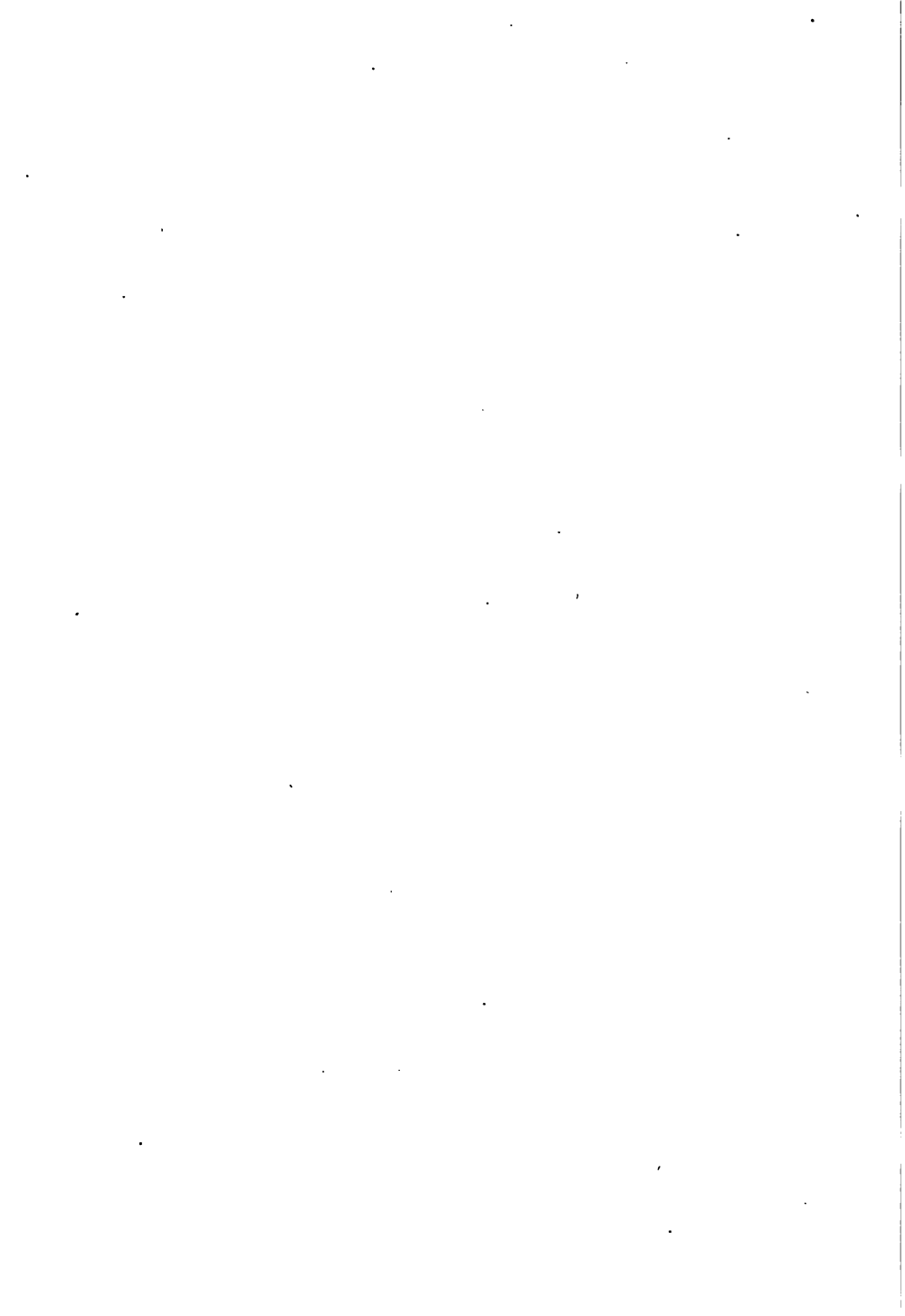


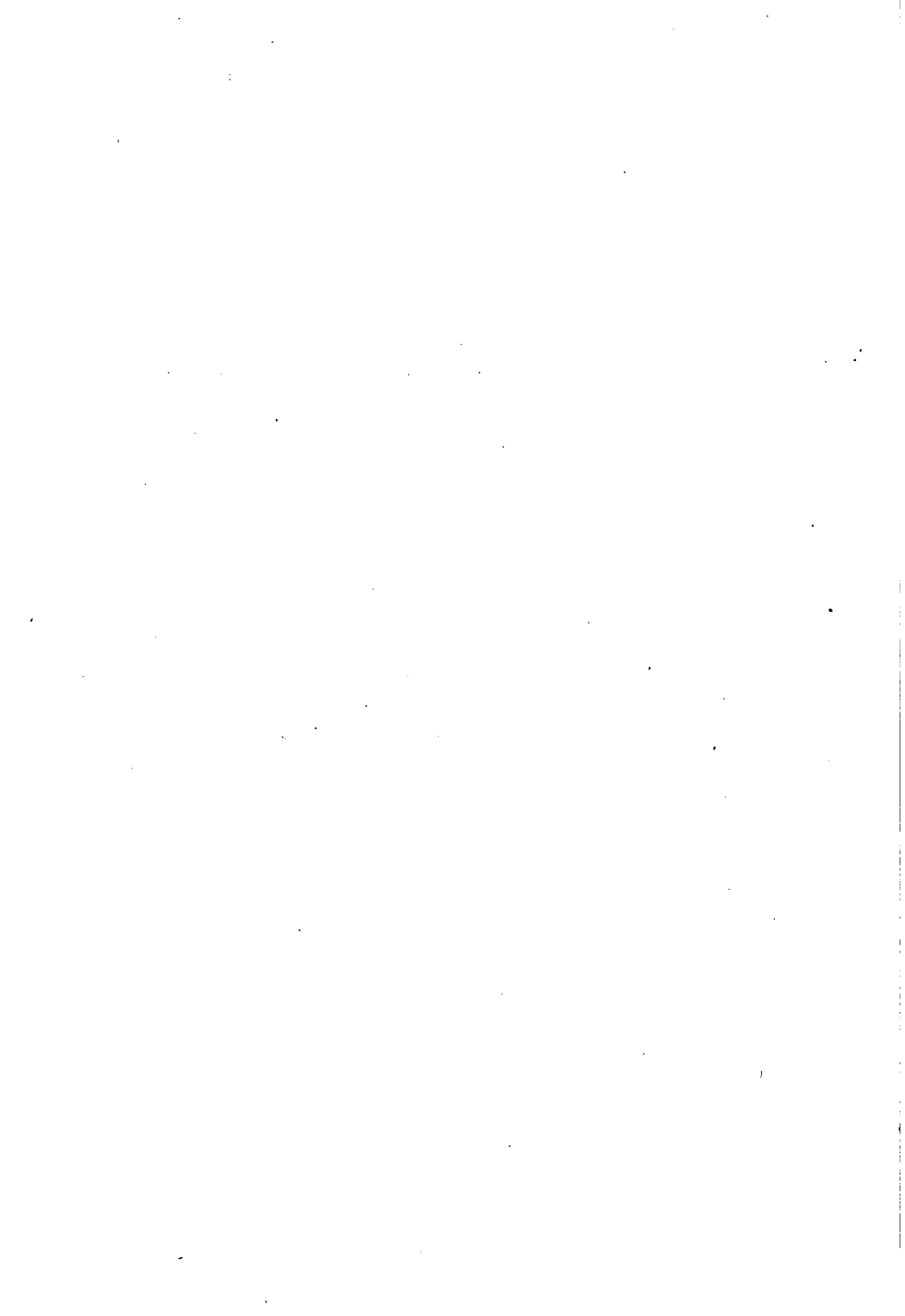




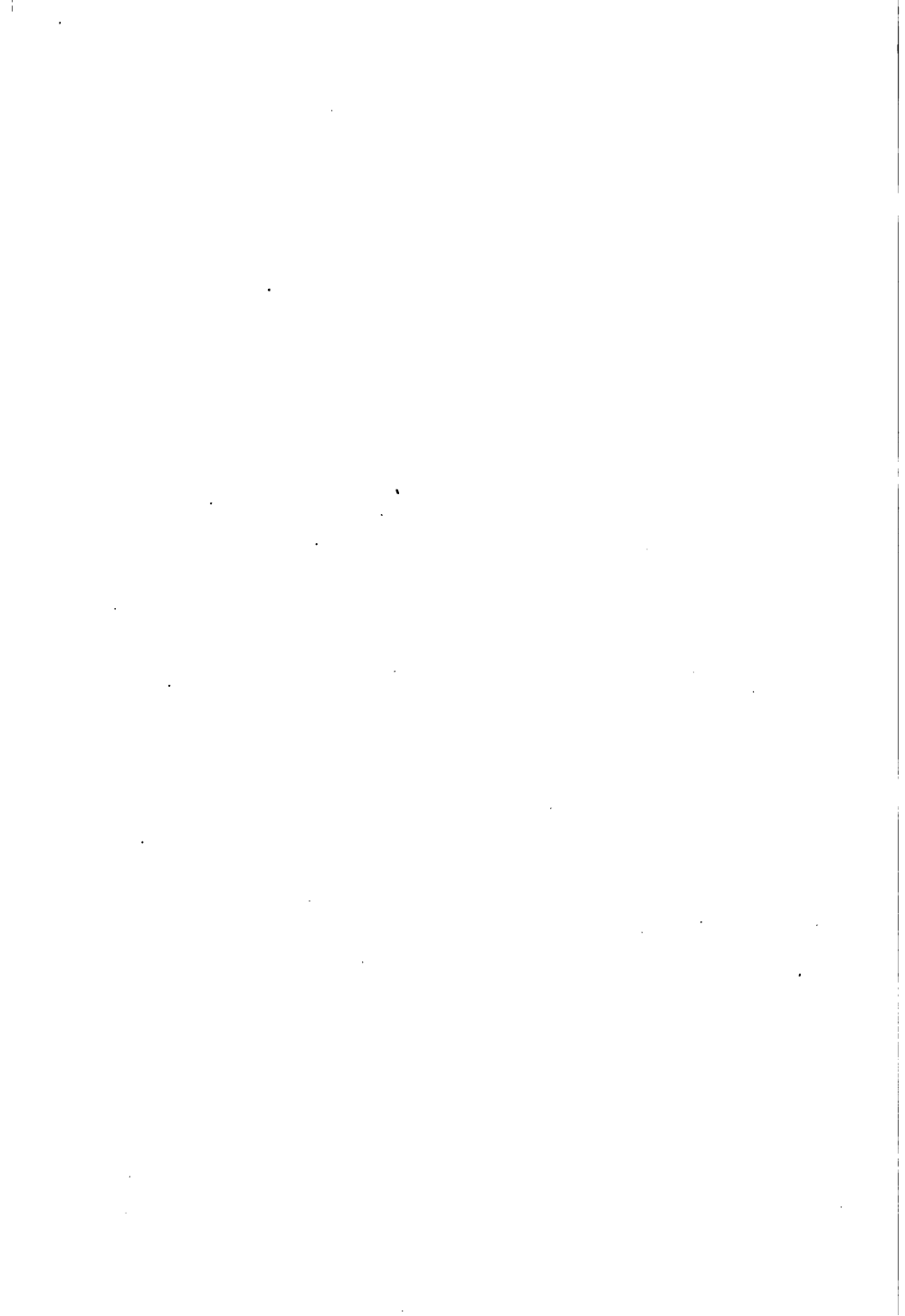




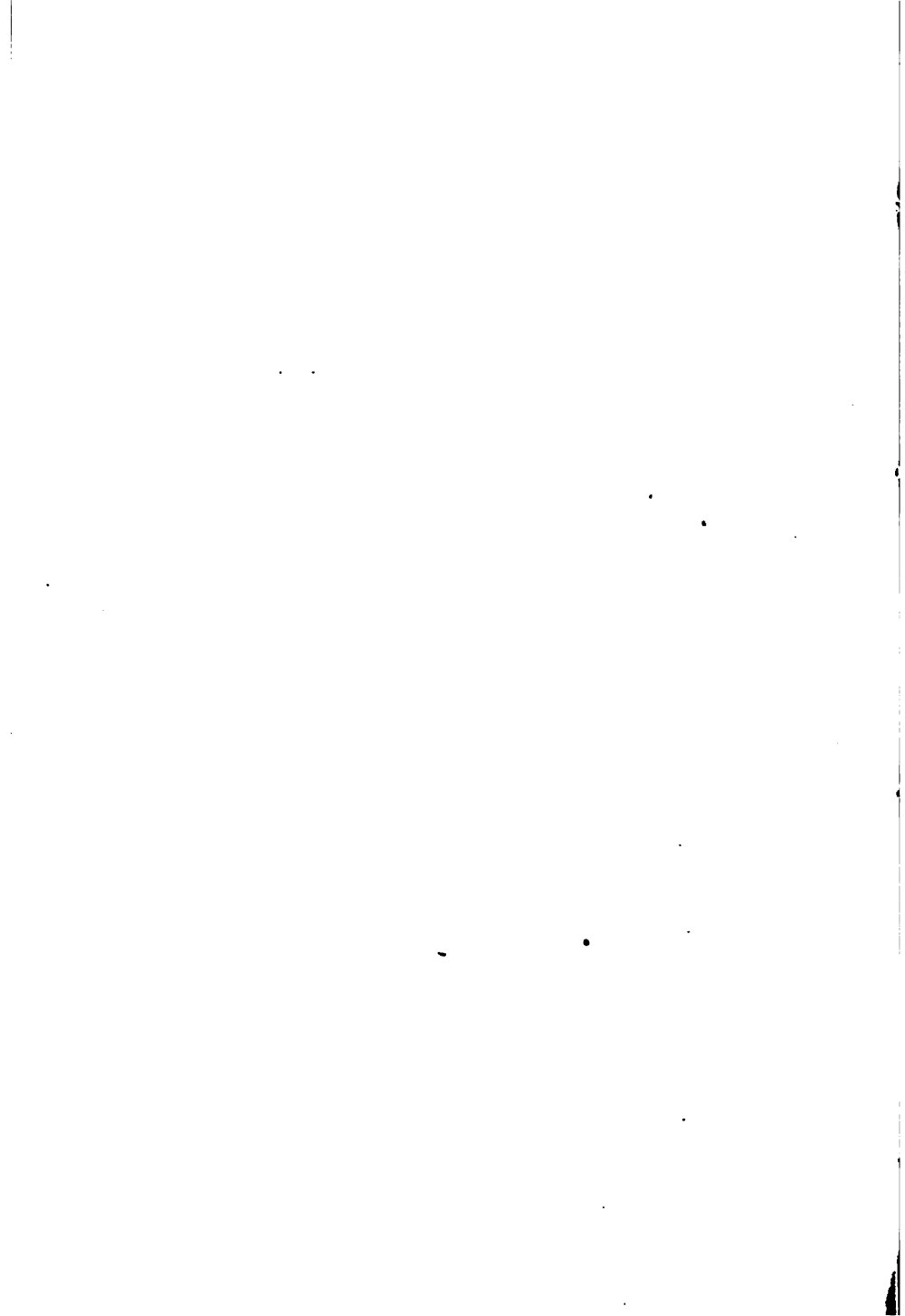




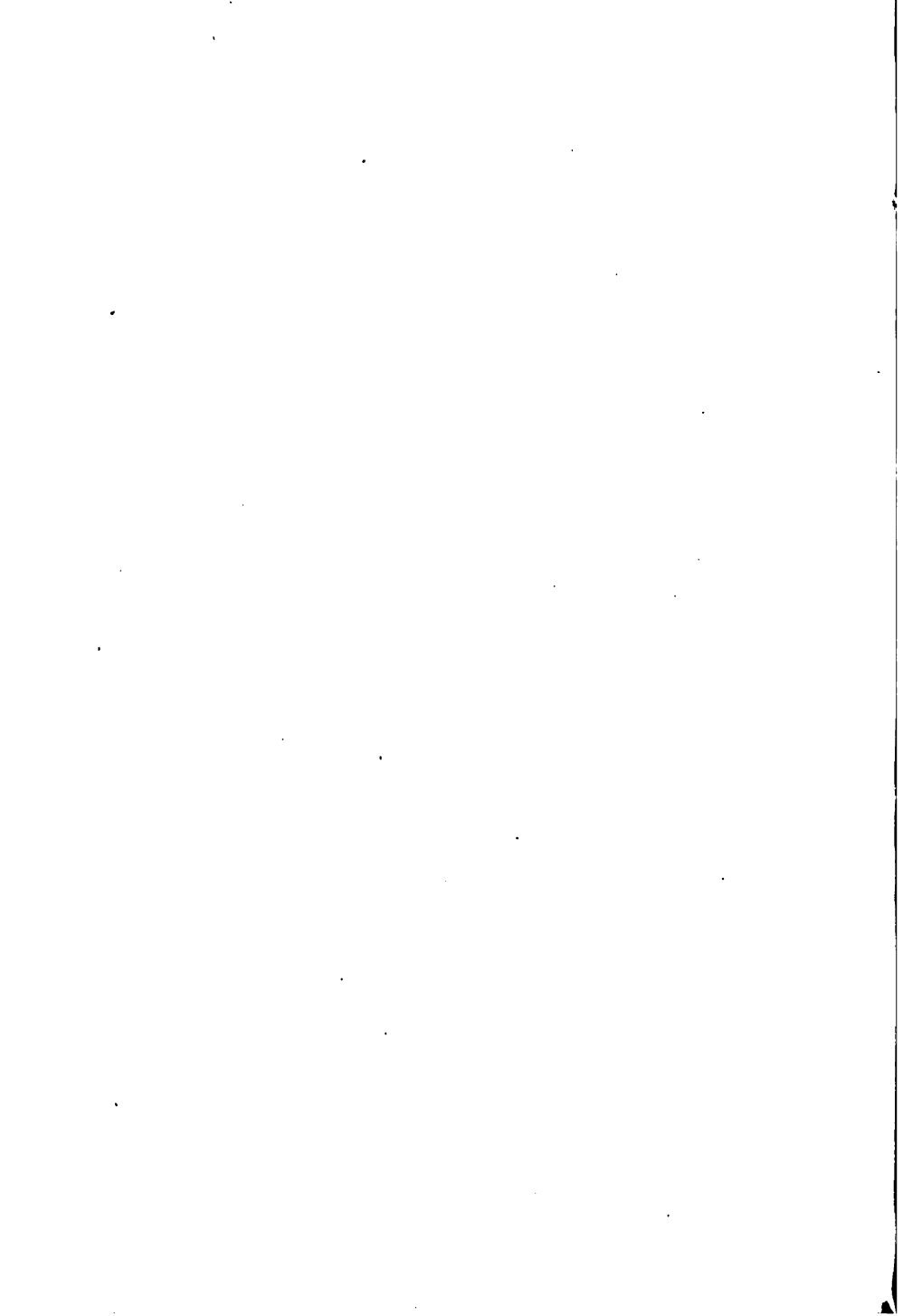




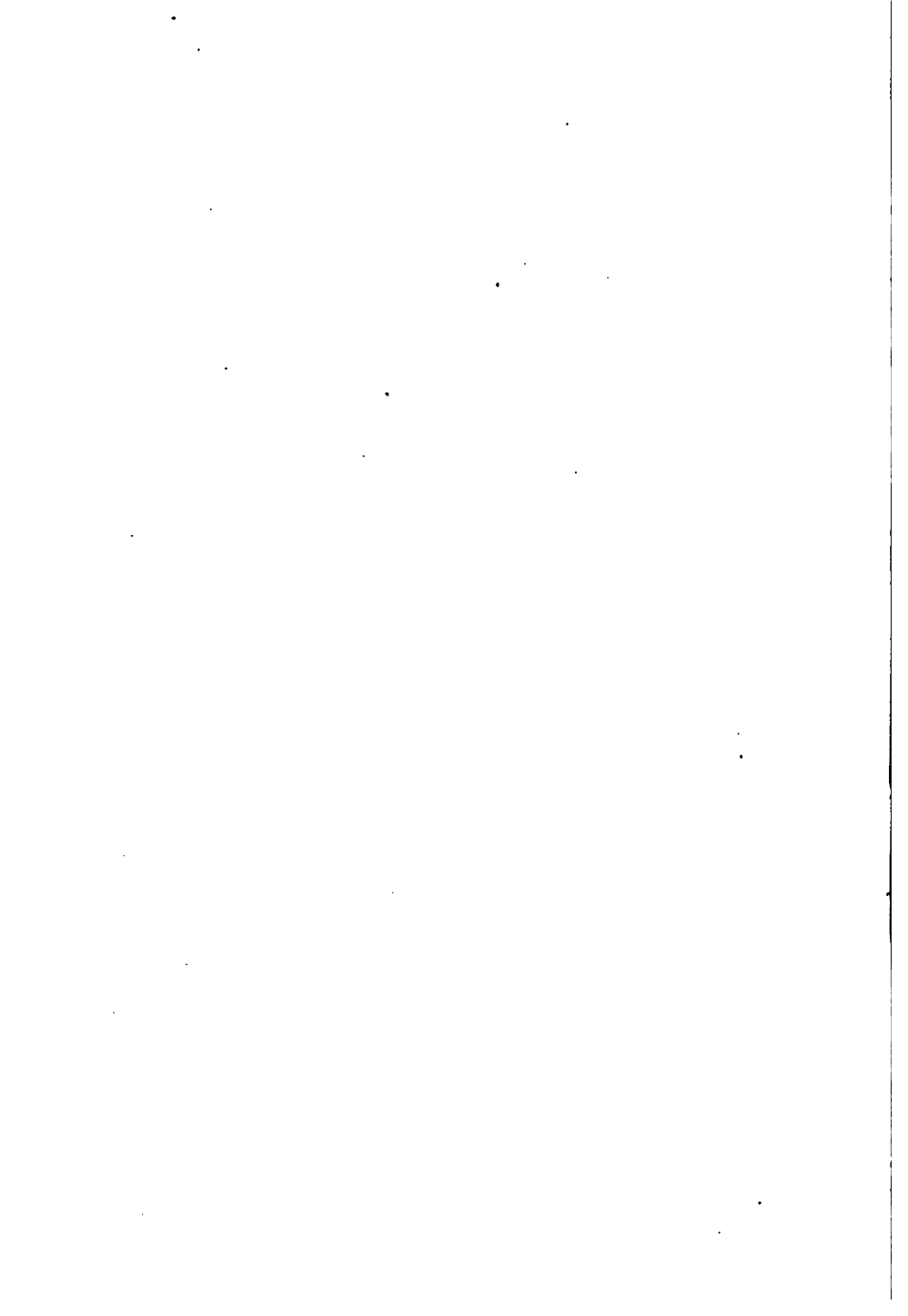












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